## **APPENDIX B**

OU1 SOIL BORING LOGS (Provided on CD)

	3 -4 -4			Project: Olin Chemical Superfund Site						
	MACT	EC		Location: WILMWGTON, MA-	Boring:	SR-	400			
	WHIGH			, and the second se	File No.:	- 2	,			
	The state of the s			Client: OLN	rije No.:					
Con	ractor: ZEBRA			ethod: GEOPROBE/HAND & TRACK RIG	Definitions: 8 = Split Speen Sample					
Ope	rator: E. PLANK		Bore Hole		U = Thin Wall Tube Sample			- 1		
	ged By: T.D. LONGU	<u> </u>	Auger ID/	OD: NA	R = Rock Core Sample V = Insitu Vane Shear Test					
_	cked By: CTM	7	Sampler:		q <sub>p</sub> = Unconfined Compressiv web = weight of 140 lb. ham		psi)			
	Start/Finish: BOTH 8-	36.69	Hammer Water Le		wor = weight of rods	wor = weight of rods				
	ng Location: SHED BUTLER B	LDG.	Water Le	ver: NA	wc = Water Content, percent ec = Organic Content, percen	t				
Ref.	Elevation1:									
	Sample Information	on								
						5	<b>E</b>			
Depth		D&wc/	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
0	Sample No. 5-1 0-1.0	1.0/1.0	13:23	Mallantan Charles And to a did a	-1-1					
	5-1 0-1.0 OC-5B-400-0.0/1.0-xxx	, 1.0	13:25	Yellow brown, fine SAND, trigrand to o.	5 , Cleanbolow	SP	V 1			
	C.SB. les solling wy		13.23	hoose, dry, V. well sorted FILL / DISTI	urbas	,	1			
				•						
1				LAST 1º 15 Gray f. SAND	PID=0					
	5-2 1-4	3.0/2.2		gray to yellow brown, fine SAND, V.	well					
				Sorted, med. dense, dry, Non-plast		50				
							- 1	- 1		
				Stratified, ALLIVIUM	PID=0					
4'	5 2 11/ = 1	1 6	12.2.		1-0-0	-				
		30/2.0		As Above to 6.2'	.,,	10	Y			
	OC-5B-400-5.0/7.0-XXX		13:30	6.2-7.0 - Whitish & black, bleaches		2	'			
				V.Fine SAND, tr. to Little organics possibly,						
7'				Dry to damp LAST 0.4 V. dark raddish brown f. SAND	,,	ch				
				Refuser To Hand Geoprob @ 7" USBO TRACK RIG FROM 7"-11"		SP				
				1/ 2nd many classes at distrated:						
				V. Bod recovery-sleeve got distorted; brown Fine SAND TON? tollowed by a	lade wellbrush					
/				brown SILTY Fine SAND, WEEK V. FIRM, ALLUV	ines					
//										
				B.U.B. @ 11' REPUSAL TO DRILL	_ EQUIP.					
								1.00		
						ı				
					0 11					
Note	s									
	AT POOR RECOVE	my of	7-1	i zone, Changed Rics to use Track	L-NIOUNTED	600	probe.			
	Could mles a	o to 2	5 with	I the changed Riss to use track - His Rig due to cave- IN.						
	Discuse In 1	HRIC	M422	uni - devide NOT TO COLLECT Sample - c	Call ass			- 1		
	Uncuss W/ C	,		THE WENT NOT TO COME STANGE - C	an Defus	r He	E.			
Strati	ication lines represent approximate bo	oundaries betw	reen soil types	transitions may be gradual. Water level readings have been made at times	Page / a	1 2	r / crm			
and u	nder conditions stated. Fluctuations o	of groundwater	may occur du	e to other factors than those present at the time measurements were made.						
					Boring:	B-4	100			

	180			Project: Olin Chemical Superfund Site					
	MACT	EC		Location: Wilmington, MA	Boring: S &	400			
				Client: Oliu	File No.:	700			
Carr			J	Contract and the Contract of t					
	tractor: ZEROA rator: Jason Frede	2010	Bore Ho	Method: Direct Push le ID/OD: Form 1/2/21/21/2	Definitions: S = Split Spoon Sample				
	ed By: Jon Rawal			10D: NA-	U ≈ Thin Well Tube Sampl R = Rock Core Sample	le			
Che	cked By: Chr. Manne	la	Sampler	Dave Chapman	V ≈ Insitu Vano Shear Test				
Date	Start/Finish: 9 1809			Wt./ Fall: /V/	q = Unconfined Compress woh = weight of 140 lb. has				
Bori	ng Location: Anew 6			evel3: 26 B65 based	wor = weight of rods we = Water Content, percer	ot			
Ref.	Elevation¹:				oc = Organic Content, perc				
	Sample Informat	tion			1				
		ery		Sample Description and Classification		cation			
Depth	Sample No.	Recovery	Tine	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)			
	Stewell 0-5	1.6	1030	Concrete slab U - 0.7	PIDO	30 405 m			
				1					
				0.7-2 hight brown fine to coase ourlgrend, My to moist. (5/absurg	ude) =0.1	Sui			
				2-5 Brown do dark long un fine tou					
				with a little cooper of and I had	A CHARLE	501			
				with a little coarse sent and little to	When to	50/ /SW			
						7304			
	Strevet 2 5-10	3.0	1035	5-6 Brunto darkreddish brava to very dark brown Printo medin sunt	P10=0				
1	,			very dark brown Printo medin sunt	Very 1				
1			ļ	world to wet somphed very darklown layer > 5.5-516	noted black	SP			
		<u> </u>	-	layer > 5.5-516	=0				
				6-10 Reddish brown to brown Firet	> rodus				
			-	from the redderbosom /dan reddile brow	or chise	50			
1	*		<del>                                     </del>	from the reddicto row dark reddile brown	7				
				to brown.					
	51een # 3 10-15	3,4	1045	10-15 Brown Fine to median savel	P10=0				
			<del> </del>	with a trace of grand. Wet, stratated were uniform gruns ree. 14.5-14.7 Brown Rive such with a trace	-1	50			
				uniform grunsize.	( , ,				
				14.5-14.7 Brown Fine soyal with a trouce well strate of with 3 miles thin 2-4.	ot sile = 01	4/000			
				luyers.	3//-	7,74			
			<u> </u>	14.7-15 Brown medius surlariths Ane sund coultwees of coarse sand.	one = 0.3	SP/SIM			
			<del> </del>	fire sund and traces of coarse sand.	Wet.	/24			
					=0.5				
Note	es				70.7				
Stratif	fication lines represent approximate h	oundaries hee	een soil hann	Providence may be conduct. We have been determined in					
and u	der conditions stated. Fluctuations	of proundwater	may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / o	<i>t</i> 2			
}	yeng (Cauly	Y1							
	<del>'</del> U	V			Boring: 5B	-400			

1	188		Project: Olin Chemical Superfund Site			
1	MACTEC		Location: Wilmington, MA	Parina CO	11100	
1				Boring: 5	COPE	
			Client: Oli u	File No.:		
			1 Thou			
Conf	tractor: ZEROA	Drilling !	Method: Direct Push	Definitions		
Oper	rator: Jason Fredericks	Bore Ho	le ID/OD: 15/82 / 21/32	Definitions: S = Split Spoon Sample		
				U = Thin Wall Tube Sample		
Loge	ged By: Jeny Rawdiffe	Augeril	IOD: NA	R = Rock Core Sample V = Insitu Vane Shear Test		
Cned	cked By: chris mundia	Sampler	Dave Chapman	q = Unconfined Compressiv	eStrength (psf)	
Date	Start/Finish: 9 18 04	Hammer	Wt./ Fall: NA-	weh = weight of 140 lb, ham		
Bori	ng Location: Pren 6	Water Le	ivel3: 76'865 baselon soils observer	wer = weight of rods we = Water Content, percent		
Ref.	Elevation <sup>1</sup> :			oc = Organic Content, percer		
	Sample Information					<del></del>
1	Cumple information			1		
1		1			Unified Classification Analytical Collected (Y/N)	
	_				#   #   #	_
اعا	Ö	1	Sample Description and Classification		후일일	<u>.</u> 5
1 2	8	9	·		ssi si e	/at
Depth	Sample No.	Time			Unified Classificat Analytical Collected (Y/N)	Elevation
115	Sleene#4 15-20 3.1	1055	15 100	1 4 4 4	201800	ш
	3,300	100	13-10 Spain media to course suntainf	POPLI	ا ا	
		<del> </del>	a threat his said wet. Possible very f	Frier oversuit o	lor.	
			18-19 Uline to olive brown fine to course on	ما مسا	SP	
			grand with a true of sile wat were	( ) -17		
			15-18 Brown meden to course sunlant a trace of fine sand. Wet. Possible very to 18-19 Ulin to olive brown fire to course su grand with a trace of silo. wet, massion	(エリ) ラルン・	LIPE	
					107	
	UC-5B-4UU-17/19-1204	1100	19-20 Gry Anito coarse surlands	amel with	GW/GM	
	SC 37 100 17/11-700X	1100	a like the state of the state of the	11	10111	
		-	a libratosamesinama maces of eva	bles, =0.1		
			Wet, massus			
20			1			
		<del>                                     </del>	C. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
1		<del>                                     </del>	Simped cetters very hundatis' BGS Refusalat 201 BGS Bottom of boing = 20'BGS			
		-	Repuralat 201 BGS			
			BATTOM OF DOCUME = 20'B65	*		
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and	nder conditions stated. Fluctuations of groundwater	reen soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of Boring: 56-	2	
1 ()	1/21/1/20	,	at the state of the same state of the same	<i>- - - - - - - - - -</i>		
1 0	eng carrey			Daving CR	///\	- 1
<u> </u>				Boring: >0	700	- 1

	3-2-47			Project: Olin Chemical Superfund Site				
1	MACI	EC		Location: WILMWGTON, M4	Boring:	SB	-401	
1	WHIGE			_	•		101	
ı				Client: OLIN	ile No.:			
1								
	77224		lo-m	11.1. (5.2. 05 /11.12 2.1502 = 2.				
Con	tractor: ZEBRA		Drilling N		Definitions:			
Ope	rator: E. PLANK		Bore Hol		i = Split Spoon Sample J = Thin Wall Tube Sample			
Logg	ged By: T.D. Low	LLEY	Auger ID	OD: R = Rock Core Samp				
	cked By: CTm		Sampler:		/ == <u>Insitu</u> Vane Shear Test <sub>h</sub> = Unconfined Compressiv	n Strangth (	~··•	
	Start/Finish: BoTL 8	21-09	Hammer		rah = weight of 140 lb. han		paa)	
	ng Location: Buffer 8		Water Le	m <sup>3</sup> .	eur = weight of rods			
Boili	OFFICE -		11.000		rc = Water Content, percent e = Organic Content, percen	ıt.		
Ref.	Elevation1:	40						
	Sample Informat	lion						
1	Sample Informati	I	г —				<u> </u>	
ı						티	(Y/N)	
		10/-				Unified Classification	ا م	_
		D.R. rv.		Sample Description and Classification		교	충용	Elevation
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Depth	Sample No.	D.R.IV.	Time			Unified Classifi	Analytical Collected	<u> </u>
<del>                                     </del>	5-1 0-1.0	1.0/1.0	12:27	Gent nella 1 . P. 54.1221				
		7.97,0		gray to gellow brown, fine SAND, V. Well			W	
	OC-58-401-0.0/1.0-XXX		12:30	boose, dry, non-plastic, stratified, fine	L Idisturbed	SP	Y	
	•	i			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
1.7			<u> </u>		PID=0			
$\mu$		- /-	10.01		120-0			
	5-2 1.0-4.0	30/1.6	12:34	gray brown to 1.3 FILL			- 1	
		'				/_I	- 1	
				1.3-4- yellow brown fine SAND, v. 1	holl	52		
		<del> </del>		Gorted lace du aliver chart	Deal.			
		<b></b>	<del></del>	Sorted, Loose, dry, non-plastic, strati	DES			
4				ALLUVIUM - natural	F1D=0			
	5-3 40-7.0	30/3.0		Yellow brown Line SAND, V. well sorte	d Med			
				donse, non-plastic, dry to 5.8, the	in damp,	SP		
				· · · · · · · · · · · · · · · · · · ·	• /	ا (ح	1	
				Stratified ALLUVIUM	25.		- 1	
2					PID=0			
Η	5-4 7.0-9.5	2.5/2.5	12:45					
		213/0.3	10145	gray to gellow brown, fine SAND, dan	p to 8.5		4	1
	OC-5B-401-75/9-5-200		12:45	Wet to 9.5, STAN DIFFER ALLIVIUM	,	50	1	
	·			WED 1- 1.3, STRATIFIED ALLUVIUM			`	
				>	ID=0		1	
00				7	11-0			
7.5						-		
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				transitions may be gradual. Water level readings have been made at times	age /	OF	2 1	
and u	nder conditions stated. Auctuations	of groundwater	may occur du	e to other factors than those present at the time measurements were made.	,	<b>U</b> F	X1 401	am
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				įB	oring: 🗲	D-	10/	

HAC']  FEBRA  E. PLAN  T. D. LON  CTM  Sh: BOTL 8.  II. BHILER  OFFICE-  ample informat	K 1GLEY 136-09 BUUDWG 1AB	Auger II Sampler	le ID/OD: 1.58° / 2°  D/OD: NA  T. D. Longuey  WL/ Fall: NA	Boring: File No.:  Definitions: S = Split Spoon Sample U = Thin Wall Tube Samp R = Rock Core Sample Y = Insitu Vane Shear Te q. = Unconfined Compres weah = weight of 140 lb. b wer = weight of rods we = Water Content, perc ec = Organic Content, per	st sive Strength annuer ent		
EEBRA E. PLAN T. D. LON CIM sh: BOTL 8 n: BUTLEP OFFICE-	K 1GLEY 136-09 BUUDWG 1AB	Bore Ho Auger II Sampler Hammer	Client: OLIN  Method: GEOPROBE/HAND PORTABLE RIG  T. D. LONGLEY  WELFall: NA	File No.:  Definitions: S = Split Spoon Sample U = Thin Wall Tube Samp R = Rock: Core Sample Y = Insitu Vane Shear Te q = Unconfined Compres wath = weight of 140 lb. b wer= weight of rods wc = Watter Content, perce	ple st saumer ent		
E. PLAN T. D. LON (TM sh: BOTL 8: n: BUTLEP OFFICE-	19Ley 126-09 Building 1AB	Bore Ho Auger II Sampler Hammer	Method: GEOPROBE/HAND PORTABLE RIG le ID/OD: 1.58° / 2° D/OD: NA T. D. Longuey WL/Fall: NA	Definitions: S = Split Spoon Sample U = Thin Wall Tube Samp R = Rock Core Sample Y = Insitu Vaue Shear Te q, = Unconfined Compress wash = weight of 140 lb. h war = weight of foods wc = Water Content, perce	st sive Strength annuer ent	(psl)	
E. PLAN T. D. LON (TM sh: BOTL 8: n: BUTLEP OFFICE-	19Ley 126-09 Building 1AB	Bore Ho Auger II Sampler Hammer	le ID/OD: 1.58° / 3 " D/OD: NA T. D. Longuey Will Fall: NA	S = Split Spoon Sample U = Thin Wall Tube Sam, R = Rock Core Sample Y = Insits V are Shear Te q, = Uncomfined Compres weah = weight of 140 lb. h war = weight of rods wc = Water Content, perce	st sive Strength annuer ent	(psl)	
E. PLAN T. D. LON (TM sh: BOTL 8: n: BUTLEP OFFICE-	19Ley 126-09 Building 1AB	Bore Ho Auger II Sampler Hammer	le ID/OD: 1.58° / 3 " D/OD: NA T. D. Longuey Will Fall: NA	S = Split Spoon Sample U = Thin Wall Tube Sam, R = Rock Core Sample Y = Insits V are Shear Te q, = Uncomfined Compres weah = weight of 140 lb. h war = weight of rods wc = Water Content, perce	st sive Strength annuer ent	(psf)	
T.D. LOA CTM sh: BOTL 8 n: BUTLER OFFICE-	19Ley 126-09 Building 1AB	Auger II Sampler Hammer	le ID/OD: 1.58° / 2° NOD: NA : T.D. Longuey Will Fall: NA	S = Split Spoon Sample U = Thin Wall Tube Sam, R = Rock Core Sample Y = Insits V are Shear Te q, = Uncomfined Compres weah = weight of 140 lb. h war = weight of rods wc = Water Content, perce	st sive Strength annuer ent	(psl)	
CTM sh: BoTL 8. n: Butley Office-	'36 - 09 Building 'LAB	Sampler Hammer	WLI Fall: NA	R ~ Rock Core Sample V = Insits Vanu Shear Te q = Unconfined Compres wah ~ weight of 140 lb. h war = weight of rods wc ~ Water Content, perce	st sive Strength annuer ent	(psl)	
CTM sh: BoTL 8. n: Butley Office-	'36 - 09 Building 'LAB	Sampler Hammer	WLI Fall: NA	V = Insitu Vane Shear Te q = Unconfined Compres web = weight of 140 lb. h war = weight of rods we = Water Content, perce	sive Strength annuer ent	(psi)	
sh: BoTL 8. n: BuTLEY OFFICE-	Building 'LAB	Hammer	Wt/ Fall: NA	q = Unconfined Compres wash = weight of 140 ib. is war = weight of rods wc = Water Content, perce	sive Strength annuer ent	(psl)	
n: Butur Office - :	Building 'LAB			war = weight of rods wc = Water Content, perce	ent		
OFFICE-	LAB		,,,,	wc = Water Content, perce			
	tion	T T		ec = Cegame Content, pen	cent		
ample Informa	tion	1					
	DRIVE Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
nple No.	~ ~	LĒ.			5 8	2 2	9
0-1.0		11:45	gray brown line SAND, very well sorte	-11	T- ~		<del>                                     </del>
2-0.0/10-XXX		11:45	dry was alone at the	T, Loose,	SP	V	
		·	dry , Non- plastic , stratified , File - distu	rhed	الماد	J	
			Not enough volume for TOC Jar				
		<del>                                     </del>		b=			
10-11-	2./-	11:00-		PID=0			
7.0 - 7.0	2.0/2.0	11.50	As above to 1.7'				
			1.3'-4.0' User Law Pr. Saala V.		1 1		
			The yellow orange sine show, V, W	eu sorted	1, 1		
			beese, ary, non-plastic, stretified Au	urium	15P		
			NATURAL SOIL		1 1		
4.0-7.0	3.0/2.5	11:53			<del>                                     </del>		-
		77.02	Tellow brown to Light gray brown, fine S	AND	1 1		
			V. Well Sorted, Loose to med danse dry	Dossibs			
			damp @ 2 " STRUTIE of Assessed	prosing	SA		
			of the state of th		1 1		
				PIU=0	1 1		
.0-9.5	2.5/2.5	11:57	Yellow brown alternative by arm brown	( cation a			
-7.5/9.5-XXX		12:00	chart 1 +1:06 AE PS SAWA	- 300111103	50	Y	
/			Q & S' WE STIND MA	mp, wet		_ / _	
			cos, very well sorted, med. dun	se na-		- 1	
			prostic, stratified, alluvium DI	0=0		- 1	
				7			
			B.O.B. @ 9.5° REFUSAL TO DRILL	EQUIPMENT			
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	1.0-4.0 4.0-2.8' .0-9.5' -7.5/9.5-xxx	4.0-7.0' 3.0/2.5	4.0-2.0° 3.0/2.5 11:52 .0-9.5° 2.5/3.5 11:57	Not energh volume for TOC Jar  1.0-4.0 3.0/3.0 11:50 As above to 1.7'  1.7'-4.0' yellow brown fine SAND, V. W.  Loose, dry, nn-photic, stratified ALL  NATURAL SOIL  4.0-2.0' 3.0/2.5 11:52 Yellow brown to Light gray brown, fine S  V. Well Sorted, Loose to med dense, dry,  Amp @ 7', STANTIFIED ALLUVIUM  10-9.5' 2.5/3.5 11:57 Yellow brown alternating by gry brown  about 1' thick of fine SAND, do  @ 8.5', very well Sorted, med. dan  phostic, stratified, alluvium  PI	Not enough volume for TOC Jar  PID=0  1.0-4.0 3.0/2.0 11:50 As above to 1.7'  1.7'-4.0' yellow brown Line SAND, V. well sorted bross, dry, nm-phostic, stretified Armevium  NATURAL SOIL PID=0  4.0-2.0' 3.0/2.5 11:53 yellow brown to Light gray brown, fine SAND,  V. Well Sorted, Loose to med danso, dry, possibly damp @ 7', STRUTIFIED Armevium  PID=0  .0-9.5' 2.5/2.5 11:57 yellow brown alternating by gray brown sections	Not enough volume for TOC Sar  PID=0  1.0-4.0 3.0/3.0 11:50 As above to 1.7'  1.7'-4.0' Yellow brown Line SAND, V. well sorted bose, dry, nm-phostic, stratified Armvium SP  NATURAL SOIL PID=0  4.0-2.0' 3.0/2.5 11:52 Yellow brown to Light gray brown, fine SAND,  V. well sorted, hoose to med danso, dry, possibly Sp  Amp @ 7', STRATIFIED Armvium  PID=0  0-9.5' 2.5/3.5 11:57 Yellow brown alternating by gray brown sections about 1' thick of fine SAND, damp, wet  @ 8.5', very well sorted, med. danse non-phostic, stratified. alluvium  PID=0	Not analyte volume for TOC Jar  PID=0  1.0-4.0 3.0/3.0 11:50 As above to 1.7'  1.7'-4.0' yellow brown Line SAND, V. well sorted books, dry, nm-plastic, stratified Alwayum SP  NATURAL SOIL PID=0  4.0-2.0' 3.0/2.5 11:52 yellow brown to Light gray brown, fine SAND, V. well sorted, loose to med dense, dry, possibly of Manp @ 2', STRATILIED ALWAYUM  PID=0  0-9.5' 2.5/3.5 11:57 yellow brown alternating by gray brown sections about 1' thick of fine SAND, damp, wet  @ 8.5', very well sorted, med. dense non-plastic, stratified, alluvium PID=0

perator: Read homes perator: Date Duschi gged By: Tenny Raweli pecked By: Crm te Start/Finish: 8/26/09 pring Location: Acce 6	Bore Auge Sam Ham	Method: Rate Sonic  Definitions:  Definitions:  Spili Spon Sample  Uniform March Table  R = Rock Core Sample  Valuation Chapman  Why Fall: NA  every 19,2 manuful inhorable we camp  we weight of 100 in  we were weight of 100 in  we we were weight of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we we were well as the control of 100 in  we were well as the control of 100 in  we were well as the control of 100 in  we were the control of 100 in  we were the control of 100 in  we were the co	umple Test vessive Strength (psf) A hammer				
f. Elevation¹:		7 Bucodun Soils oc=Organic Content,	acen				
Sample Information			T 5				
Sample No.	Recovery	Sample Description and Classification	Unified	Analytical Collected (Y/N)	:		
(lu #10-5	3.3 13; UM 131						
		3-5' Brown to dark brown fine to medin =0.  sund with a title course sand and a trave of grown Very moist, massine.	150				
Run# 25-10	4,9 132	D5-7'  5-78 Brun to down borners to very deal PIDZ for borners to fite to media sul with a little gravel and coorse sund cother top of the invent 20 years of Slightly strate field with a couple of the borners transfer with a couple of the borners to bland layers containing organic debug	0				
06~5 B-403~ 6/8-X	** (3	dothorum to blant layer contains organicalement of the boung of the boung of the boung of the boung of the flat home of the fore to made some with a some organical with the total and the some organical with the fore to made some with some organical for the forest fue to well and the some organical for the forest fue to well and the some of the total fue to well and the some organical fue to well and the some of the total fue to well and the some of the total fue to well and the some of the total fue to well and the some of the s	· I		***************************************		
Runt310-15	43 133	10-10.5 Brown here tookedin sunt. Web. PIN=1.7 105-15 higher brown to light olive brown fire to medium suntaked of, masser _ ZV,8					
X-5/3-403-17/15-X	12 134	= 0.5					
5		=0.	7				
<u>vtes</u>							

	MACT	EC		Location: Wilmington, MA  Client: Olin Chemical Superfund Site	Boring: SB-403 File No.:				
				Client: Oli A					
Contr	actor: Rearthone	en		Method: Roto Sonic	Definitions:				
Opera		LT.		e ID/OD: 47/000 investings /1000 o. Her Consin	S = Split Spoon Sample U = Thin Wall Tebe Sample		•		
Loggr	ed By: Jenn Rawc	itte		IOD: NA	R = Rock Core Sample				
	ked By: CTm		Sampler	A 2:	V = Insitu Vanc Shear Test  Q = Unconfined Compressive Strength (psf)				
	Start/Finish: 8 26/09	}		Wt/ Fall: NA	weh = weight of 140 lb. ham		g,		
	g Location: Area 6			vel3: 19.2' Necessed in bounde is casing	wer = weight of rods we = Water Content, percent				
	levation1:		1	27 Basedon Soils	oc = Organic Content, percen	r			
	Sample Informat	ion							
Ę.		Recovery	9	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
Depth	Sample No.	8	Time			들등	3 S A	<u> </u>	
15	Run #415-20	4.8	1340	15-16 h. Lat brown to lichet olive orom	PID=0.8				
17 F	100W 84713 00	1.0	1010	15-16 hight brown to light olive brown fixe to median sout. West.					
				16-17 his bot dine forcer tohe to course fur	Museume 20.6				
1				unter a little wedin sund citt and ad	me sul		-		
		<u> </u>	<del>                                     </del>	of growl. Wet.	se savel				
				18.5-20 diagny to gry fire to coor and product with a little site and coldes wet, massey bo youred orders do	L. 20.6				
90	Ruy \$ 3025	0.0	1345	Wer, massay so convers out = 300	acquer -	-			
ŀ	Kuy 43 20-25	2.0	1375	Pour revoicey 42 cobbleat	P10-0.6				
				sond and grand with some coll	bsaul				
				a little sitt. West, massive.					
-					= 1.1				
25					=0.4				
73	Run#6 25-29	4.6	1355	15-27 Coranges dark olive gray fine to coarse sund and gravely the sou silt and colorles week massar.	P10=0.5				
-  -				27-28.5 Nive to other bown fire to coor	e -0.7			*	
-				appears to be weather rockingments ent	20.4				
		100		28.5-24' Chhlos (Roch).	=0.5				
-		557	-	Topof weedhord work estanted 265	RGS 20.5				
- 1									

- 9

-	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin  File No.:						
Oper Logg Chec Date Bork	ogged By: Term Rawcliff Auger ID Checked By: CTM Sampler			Dave Chapman  We Fail: NA  we is a possible casing the complete casing in boules in the casing in th	efinitions: - Spili Spoon Sample - Thin Wall Tube Sample - Thin Wall Tube Sample - Rock Core Sample - Rock Core Sample - Institu Vane Shear Test - Unconfined Campuessiv - weight of 140 lb. ham or weight of row weight of row - weight of row - Walter Content, percent - Organic Content, percent	umple be Sample maple filter Tess compressive Swength (psf) 40 lb. hammer ods at, percent				
Depth	Sample Informati	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
	Ru#10-5	4,5	1515	0-15 Brown to durkbrown Fike to esse Send and oprecular th atrose of 51th. Geb 1.5-2.7 Brown to durkbrown to shaply redd brown. Fire to westing send with fraces of course coul and sit. Very moust very date organic standlager at lot 1866. 2.7-4 Black to light aproper to duck brown fine to westing such with decoupsed.	lishlorge 2015 lbhah 20.3	SU/QU SP Pr.	J			
5	Runta 7 06-511-404-5/10-	) 4.4 XXX	1570 1570	4-5 Reddish to munfite to making saint		SP	Yes			
10				7.5-10 Brown to graph brown fire of medium sund, Wet, mussive. No unusul odors.	te = 40 20.7 20.9	SP				
,,,	Runt 3 10-15	4.4	1505	Brownto groups brougets die brown fine to wednes und with some layers fine sund withcliff site. Wet. 11.5-14 Vijo brown fine coarse sund a	usl W	5P Gw				
15 Note	0C =513-43-4- 13/15-5	XXX	1540	hussul 14-15 Olive gray to gray fine to coarse sa and grand with a little site and colobles Wet massu	nl = 0.4	Cuy				
Strati	fication lines represent approxigate b	oundaries betw of groundwater	een soil types, may occur due	to other factors than those present at the time measurements were made.	ege (o⊀ oring:SB	2				

Definitions:  Operator: Date Description  Bore Hole ID/OD: 4762 DD invest custor / 600 Definitions:  S = Spirit Spoon Sample:  U = Thin Wall Table Sample:  Logged By: Term Rawcliff:  Auger ID/OD: MA  Checked By: Am Sampler: Dave Chapman  Date Start/Finish: 8 Dolo9  Boring Location: Area 7  Water Level3: (a, ( intersection of the bulk with Contact)  Ref. Elevation1:  Sample Information  Sample No. 2  Sample No. 2  Sample Description and Classification	e Strength umor		
Sample Description and Classification	Unified Classification	/tical	
Sample Description and Classification  Sample No.	Unified Classification	/tical	_
		Analytical Collected (Y/N)	Elevation
Plant 4 15-18 2.18 1535 15-16 Graphs dath gray first to coarse smal PIB-27 and gravel with 15 own whiles and a trail of site. User, was sail and 50.6 16-17 American first or or so was sail and 10-10 16-17 American first some had motoral at 17 17 18-18 to some had motoral at 17 18-18 18-1			
Notes  Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times  Page 1 1	2	,	
Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.  Boring: 88	40	14	

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Whumper WASS  Client: OLIN  Boring: 58  File No.:	Boring: 58-405 File No.:				
Oper Logg Chec Date Borir	ractor: Open hammator: Vale Ousche ged By: T. Rauchtte ked By: G. Marrelini Start/Finish: B/809 ng Location: Area 7 Elevation!: Sample Informat	ę.	Bore Hol Auger ID Sampler: Hammer	Method: (6 to Soinc	mer	psf)			
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Analytical Collected (Y/N)	Elevation		
	0C-5B-4050101x		0630	to brown fine to course sund and grand things to brown fine to course sand and grand. Moto p	SW	4			
1		4.2/ /5.0	100	1-2.4 Brown to yollow brown for sand with some weden sand PIO=11.4 2.4-5 Light brown free sand very inform moist. PIO= 98ppm. No 06010015 odo15.	sρ sρ				
4									
		4.45.0		Sample # 2 5-10 Olive borners Line to course sent and grown with a little silt. Moist, will raye of	SW				
<b>V</b>				Firmin sizes. Faint sweet organic odor. 10=340 Massine (no struft fication or layoung apparent)	-	n.			
8				P10=1150	-				
مر	OC-58-405811910xx		0842	Godahed souple from this bestein PIN=3000 = 8-9'865 VOC, 500C, Mittle, Annous, Amoria		Y			
				Breutay zone PIDI 0.3 ppm					
Note	9S								
Strat	inder conditions stated Flaghations	boundaries betw of groundwater	veen soil types may occur du	, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.  Boring: SA		35-			

**\$**.

	MANACT	TEC		oject: Olin Chemical Superfund Site					
	MACT	EC			Boring: 58	405	•		
				Client: OLIN	File No.:				
Cont	ractor: Book Lous Yea	-	Drilling I	Method: Roto Sonic	Definitions:		***		
Oper	ator: Date Oucches			e ID/OD: Inner casing UD 47/x Oures casing OD 65	S = Split Spoon Sample			1	
Logo	jed By: Jerry Rawc	LA Alo	Auger ID	OD: NA	U ≃ Thin Wall Tube Sample R ≈ Rock Core Sample			- 1	
	ked By: C. Mazzolia:			Dave Chapmen	V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressive	Strength (	·~0		
	Start/Finish: 8/18/09	<del></del>	Hammer	Wt./ Fall: NA-	ner satetigat (	par)			
	ng Location: Area 7			vel³: ≈ 9'B65.	wer = weight of rods we = Water Content, percent				
	Elevation:			1.50					
	Sample Informat	tion							
						no			
			1. 0.4			Unified Classification	= -		
		Recovery		Sample Description and Classification		d ific	tic.	Elevation	
pt		6	ခု			Unified Classif	S is a	ă Š	
Depth	Sample No.	Se Se	Time				Analytical Collected (Y/N)	ű	
10		5.3/5.0		Ru#3 10-15 100	Fire soule	d			
•		1		11 11 Brown Les de crece soul with tron	es of grant.				
	· · · · · · · · · · · · · · · · · · ·			what relative in a property DID = 21.	212 2011- 247	SP			
				Rut 3 10-15 med 20 10-11.4 Brown Live to course soul with trom wet, relativity in findy gons \$120, PID 2321 to be possible care in from one alon 10' BO	- Politice malitas				
12		<del> </del>		The property of the same of th				1	
12		<del> </del>	<u> </u>	11.4-150 Ray to distall to be	490.00	-		-	
		<del></del>		11.4-15.0 Brown to slightly of the brown five to course sand and grobel with some sitt and cubbles. Very moist massing in bruge of granicodos	490ppm				
				the to coure same and grave with some	. /				
				1 3/14 and cookers. Very moist massing in	de 560ppn	SW			
			ļ	They en your size is a tour sweet or year to adopt	` "				
14									
	OC-SB-405 1415XX	1	0910		1270pp4		lyl		
				1 1			′		
	97,0			Encounter 50 mething very haul at 215 BGS	possible -				
				hadard					
16				15-15.5 Drilled and or wered = 0.5 of	ouch.				
1.12		<del> </del>	<b></b>	Encounted something very hand at \$15'BGS hadvails 15-15.5 Drilled and recovered \$0.5' of hisely beauch hat possible boulder.					
				my seawer our possible as acted.					
		<del> </del>		Bottomof borug = 15.5' BGS			1 1		
		-		00.00.00					
10									
98			-			-			
		-	ļ						
		ļ							
			<u> </u>						
20									
		·							
22									
Note	es								
								- 1	
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l									
_					- 0 00				
				transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page <i>る。</i> f ス Boring: <i>S</i> β っ				
1 0	6 1 111	118/19	-				-	- 1	
U		110101			Boring: SRっ	-493	>		

MACTEC	Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Boring: SB-406  File No.:					
Operator: Toson Fradence 9  Logged By: Jeny Rand III Auge Checked By: Chas Marie Samp Date Start/Finish: 9 17 09  Boring Location: Water Ref. Elevation 1:	method: Direct Push  Hole ID/OD: 1.56/32 (estimate)  ID/OD: NA  er: One Chapman  er Wt./ Fall: Arb  Level3: Gwat = 0.5-1/BG5.	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  Y = Insitu Vane Shear Test  q. = Unconfined Compressive Strength (psf)  woh = weight of 140 lb. hammer  wor = weight of rods  we = Water Content, percent  oe = Organic Content, percent				
Sample Information  Sample No.  Sample No.  Sleeve (0-5 3.9 11.5	Sample Description and Classification	Unified Classification Analytical Collected (Y/N) Elevation				
0i-50-4x00.d/110-xxx 11:3	delivis leves, a soil gousses et very decomp fisegues. Very moist. 1-3 Very dark brown organic motant un some frie sent and traces of medica. Wet stratified, with organic layers and scraly organic layers.	th =0 sound:				
Sleew#2 5-10 3.3 1124	-3-5 Reddich brown tolorous Pire to a Wet, stratified, no vuvsul olors  -5-7.5 Brown Fire to medium sound. Wet stratified.  7.5-9.5 Olive brown Fire to medium sonn a little coarse sand and growel Wet	P10 = 0.1 SP				
10 Sleeve \$3 10-15 3,5 115	9.5-10 highermy to light Mir gray to with topy of sill and median to corre a little of and mesof. Wet, slight boggy/sulfer oder.	3ne soud 2015 20.7 SP Yes				
12-4	Sand and gravely ith traces of sit on Wet, massive 14.5-15 Olive to lists olive fine to course grand with a list sit. Wet.	zu a GW				
15 OC-50-406-13/15-XXX 1200 Notes	Refusalat 15'BCS Bottom of being = 15'BCS.	=0.1 Y=5				
Stratification lines represent approximate boundaries between soil ty and under conditions stated fluctuations of sponsywater may occur	es, transitions may be gradual. Water level readings have been made at times due to other factors than those present at the time measurements were made.	Page / of				
Jerry Kumlfff		Boring: 5 <i>B</i> -406				

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: SB File No.:	2-4	7	
Cont	ractor: Road hone	en	Drilling N		Definitions: S = Split Spoon Sample			
	ator: Dale Dysch		1	E ID/OD: 4 18 DD 1 MARE 2051 15 OV O DE COUSER U = Thin Wall Tobe Sample				
	ed By: Jeny Kawel	MA	Auger ID		R = Rock Core Sample V = Insite Vane Shear Test			
	ked By: 1 OTM Start/Finish: 8176/0			: Dire Chapmen  q = Unconfined Compressiv  WtJ Fall: NA  wob = uncight of 140 lb. bar			pst)	
Bori	ng Location: Areu (o			vel3: 21 Meusceech in barefuell w Carrie wer = veright of rods we = Water Content, percent				
	Elevation':			Based on Spils.				
-	Sample Informat	ion						
Depth		Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
Ŏ	Sample No.			0	1	30	40C	m
	124 #1 0 5 00-58-427-0/10	4.4	1010	0-15 Dark brown file to weeking see with trues of coorse soul and sile. (100mg.) Moist, not file. 1.5-50 Lightbrow to brown fine to: send with a little to true of coarse	' '	SP	Yess	
and good, Slight layered appearance with lighter and darker colored hyper.								
5	SP2 5-10				>0.7			
-	(Zuntta 10-10	4.5	11315	5-7 Dark brown Fine to weeting sur	000-06	- 2		
	140W II 4 DB TD	7,7	1015	Length homes of a overesent and grown Very moist, layer with rout files as Reddsh (iron shind) layer at \$6.2 7-9' Von duthlown to blank crossic D	l. -25.8' =0.7	SP		
	2 (2 (1 2 )		10-0	muterial will decorposed grading to d redulish moun five median sund and some rost plant there Use judst to us 4-10 Brown five towardier surlupt a tra-	) agra	SP		
10	8U-513.407-3/10-00		[820	surl. Wet. No unusulalists.	C 04		1/25	
	Pun#310-15	5.0	(0+0	10-12 Darkbyrun to very derkbrown fine to medur sand mittlesome aven medorid mædtin. Wet. 12-13.8 Brun to light brown frie to we	of organic			
7				with a true of silf. Wet.				
				13.8-15 highs while brown to light old fire to wedien soul sewith a trove Wet.	egy EU.9			
15 Note								
Strati	fication lines represent approximate l	chundhies between the state of grant water	reen soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page /	7	2	
1		1/1 V			Boring: $SB$	- 4	0 /	

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	MAN			Project: Olin Chemical Superfund Site						
1	MACT	EC		Location: Wilmington, MA	Boring: 50	トイロフ・				
				lon	File No.:	,	*			
1				Chent: Olia						
Conf	ractor: Roart none	: 010m	Drilling I	Method: Ray Sonic	Definitions:					
Oper	rator: Deshe Dusch	1		le ID/OD: 47/00 DO, investigas/1000 Dobber Congris	S = Split Spoon Sample U = Thin Wall Tube Sample					
Logg	jed By: Jenna Rawc	litte	Auger ID		R = Rock Core Sample .					
	ked By: Com		Sampler		V = Insitu Vane Shear Test q = Unconfined Compression					
	Start/Finish: 8126/04	L		Wt/ Fall: NA	woh = weight of 140 lb. han wer = weight of rods	mer				
	ng Location:     frea 6		Water Le	evel3: 21' meromed in borehold oncing	we = Water Content, percent ee = Organic Content, perce					
IXEI.				1 Bayed on 3011 S						
	Sample Informa	I	T			[ <u> </u>				
						Unified Classification Analytical Collected (Y/N)	_			
١.		Recovery		Sample Description and Classification		Unified Classificat Analytical Collected (Y/N)	Elevation			
Depth	N. Landa	ြိ	Time			ass start (N)	9 A			
	Sample No.					30805	<u>u</u>			
15	RULH4 15-20	4.6	1030	15-15.5 Olive my totalit die gry fixed walen some with a tone of 5/6. U	o Pro=1.0	50	1			
			<del> </del>							
				15.5-17.5 Olive brown tooling gray of	56 gs.					
			<del> </del>	course gund and grown with a little	COUNTY 2018					
$\vdash$			<del>                                     </del>	gratusio. Wet, wassal, wideoug	est	Culcu				
		<del> </del>	1	gratusizo.	cours sort	1 / 1				
				17.5-20, Cory to dank dark true 400	3018					
1				17.5-20' Gray to dank gray five to cobble	es and self					
20				Wet massin in unusual adors	=0.8					
	lunt520-25	4.4	1160	80-31. 5 Brown to sliegry Fine to me	lier said					
				in the some overnic debis- aprensues des	tubed Pio =0.8					
				in the some organic debris-appearing des						
			-	365-25 Gray to olive brown fine,	to coase	Cul				
				support smul with tresof site	and 20.9	/4				
			ļ		20.4					
			<del>                                     </del>	No vousul odors.						
25			-		<i>=0.6</i>					
10	Punt 625-29	4.3	1120	25-26 Ash ments duck study gum fineto	Det					
	WOLLD & BOOK		1	25-26 Dick gry to dock of the gry first of consesul and greet with site. Very my wassure under mye of governing to gry the 26-37 this gry to relded bruge to gry the course sund can sometyphilt out to	PIDEQ9					
			1	Usa SSULD. Les de muse of gomes size very chile	Contactor To	cu				
	02-5B-407-26/26-X	LA	1125	74-27 Mul gam to reldid bruse to my he	etu zu,5					
				coase sent and gomelupsit and on	resotcolle.					
			<b></b>	Very dove, moist pissible according to 27-28 high gary grand and colle a contract colle a privaried help a	edro-el 211		l			
		ļ	<b>_</b>	27-28 higher gray graviland estable a	ed fine to					
				come good in foch Hours. Likely w	cuttend					
		<u> </u>	<del> </del>	25-25 hills gry gravefarlastill in	-0 20.5					
Note	oe .		L	Jos- 21 hills gry gradadable in	roa		e ogé			
Note	2				217					
				Estimate top of weethard rach at. Top of firm ruch at 228'BGS	~ <i>L</i> /		- 1			
				Top of how ruch of 228365			- 1			
l				Bottom of bory at 29'B65			- 1			
				John Market Mark			- 1			
							- 1			
Strati	fication lines represent approximate	bounda/es betw	reen soil types,	transitions may be gradual. Water level readings have been made at times	Page 2	( )				
and u	der conditions stated. Fluctuations	of profinguester	may occur due	to other factors than those present at the time measurements were made.		O.C.				
	Herry Vient	/ //			Boring: SB	-407				
	V 0 7	All				1-1				
	/	V								

Con	MACT	EC	Drilling N	Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin  Method: RotoSonic	Boring: SB-407 File No.:				
	erator: Boart Longyear erator: Dale Duscher			le ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing	S = Split Spoon San				
- 1			1		U = Thin Wall Tube R = Rock Core Sam	nple			
	ged By: Jerry Rawcliffe		Auger ID		V = Insitu Vane Sh q <sub>p</sub> = Unconfined Co		e Strength (	psf)	
_	ecked By: CTM			: Dave Chapman Wt./ Fall: NA	woh = weight of 14 wor = weight of roo	0 lb. hamn			
	e Start/Finish: 8/26/2009			wt./ Fail: NA evel: 21' measured in borehole with casing	wc = Water Content oc = Organic Conte	t, percent			
	ing Location: Area 6 . Elevation:		water Le	approximately 7' based on soils	- O.S	nt, perre			
1/6	<u> </u>			approximately / based on sons	<u>l</u>				
Depth	Sample Informat	Recovery uoi	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-407-0/1.0-XXX	4.4	1010	0-1.5' Dark brown fine to medium sand with traces of coasand and silt. (loamy topsoil). Moist, root fibers.	arse	0.7	SP	YES	
ig				1.5-5' Light brown to brown fine to medium sand with a l to a trace of coarse sand and gravel. Slight layered	ittle	0.6	SP		
5	5			appearance with lighter and darker colored layers.		0.8			
	Run #2 5 - 10	4.5	1015	5-7' Dark brown fine to medium sand with traces of coarse sand and gravel. Very moist, layer with root fibers at ~ 5.8'. Reddish (iron stained) layer at ~ 6.2'.		0.9	SP		
				7-9' Very dark brown to black organic peaty material, well decomposed grading to dark reddish brown fine to medium sand and organics. Some root, plant fibers. Very moist to wet.		0.8	Pt		
10	OC-SB-407-8/10-XXX	<u> </u>	1020	9-10' Brown fine to medium sand with a little to a trace		0.9	SP	YES	
	Run #3 10 - 15	5.0	1020	10-12' Dark brown to very dark brown fine to medium sar with some areas of organic material mixed in. Wet.		0.6			
igg		<u> </u>	<u> </u>	12-13.8' Brown to light brown fine to medium sand with a trace of silt. Wet.	1	0.8			
				13.8-15' Light olive brown to light olive gray fine to media sand with a trace of silt. Wet.	um	0.9			
15	;		+			0.0			
Not			•		Jan. 17	) i	Rai	.~UNa	

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page

1 of 2

Boring:

	Maa			Project:	Olin Chemical Superfund Site						
	<b>MACT</b>	EC		Location:	Wilmington, MA	Boring:		SI	3-407		
				Client:	Olin	File No.:		<b>-</b>			
				Cilent:	Olli	File No					
Conf	tractor: Boart Longyear		Drilling N	lethod: Rotos	Sonic	Definitions:				-	
	rator: Dale Duscher				B" OD inner casing/ 6" OD outer casing	S = Split Spoon Sa U = Thin Wall Tub					
	ged By: Jerry Rawcliffe		Auger ID		R = Rock Core Sar V = Insitu Vane S	nple					
	cked By: CTM			Dave Chapm	q <sub>p</sub> = Unconfined C	ompressive	e Strength	psf)			
	Start/Finish: 8/26/2009			Wt./ Fall: NA		wor = weight of ro	woh = weight of 140 lb. hammer wor = weight of rods wc = Water Content, percent				
Bori	ng Location: Area 6		Water Le	evel: 21' measured in borehole with casing			ent, percent	t			
Ref.	Elevation:		•	approx	kimately 7' based on soils						
	Sample Informat	tion									
Depth	Sample No.	Recovery	Time		Sample Description and Classificatio	1	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation	
15	Run #4 15 - 20	4.6	1030		live gray to light olive gray fine to medium e of silt. Wet.	sand	1.0	SP			
				gravel with of grain siz		le range	0.8	GW/0	GM		
20					ray to dark gray fine to coarse sand and grae cobbles and silt. Wet, massive, no unusua		0.7				
	Run #5 20 - 25	4.4	1110		rown to olive gray fine to medium sand wince debris - appears very disturbed possible	h	0.8				
25					ray to olive brown fine to coarse sand and traces of silt and cobbles. Wet, massive, rors.	0	0.9	GW/0	GM 		
25	Run #6 25 - 29  OC-SB-407-26/28-XXX	4.3	1120	gravel with grain size, v 26-27' Oliv	k gray to dark olive gray fine to coarse sand silt. Very moist to wet, massive, wide rangvery stiff, cohesive. The gray to reddish brown to gray fine to coarse gray to reddish brown to gray fine to coarsel with silt and traces of cobbles. Very described to the silt and traces of cobbles.	ge of rse	0.9	GM	YES		
-	_ 	<del>                                     </del>	<del>                                     </del>		sible weathered bedrock.		0.5	-			
				in rock flou	t gray gravel and cobbles and fine to coarse r. Likely weathered pulverized bedrock. t gray gravel and cobble in rock flour.	esand	0.6				
			ļ				0.5				
30											
Note	Estimate top of weathered rock at ~27.5'  Top of firm rock ~ 28 ' bgs.  Bottom of Boring at 29' bgs.  Jerry X. Rawhle										
Strati and u	ification lines represent approximate under conditions stated. Fluctuations	boundaries bet s of groundwate	ween soil types r may occur du	s, transitions may be le to other factors th	e gradual. Water level readings have been made at times lan those present at the time measurements were made.	Page Boring:	2 of 2		B-407		

	d chuy			Project: Olin Chemical Superfund Site						
	MACT	EC		Location: WILMINGTON, MA	Boring:	5B-L	108			
				<b>.</b>	File No.:		,			
	*,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Client: OLIN	1 110 11011					
Com	tractor: ZEBRA		Drilling N	lethod: GEODROBE/SMALL HAND PORTABLE RIG	Definitions:					
-	rator: E. PLANK		Bore Hol		S = Split Spoon Sample					
<u> </u>	ged By: T.D. Longe	<i>-</i> 4	Auger ID		U = Thin Wali Tube Sampl R = Rock Core Sample	•				
	cked By: CTm		Sampler:	- 2 /	V = Insitu Vane Shear Test q <sub>b</sub> = Unconfined Compress		กรก			
	Start/Finish: Boll 8:	26-09	Hammer		weh = weight of 140 lb. hz		,,			
	ng Location: ButLes Bu		Water Le		wor = weight of rods we = Water Content, percen	đ.				
	Elevation <sup>1</sup> :				oe = Organic Content, perc	<b>at</b>				
<del> </del>	Sample Informat	ion								
						ء	3.VI			
pth	Sample No.			Sample Description and Classification		Unified Classification	Analytical Collected (Y	Elevation		
ے	Sample No.	<u> </u>				J 0	40	ш		
	5-1 0-1.0	1.0/1.0	10:58	mostly black wy tr. gellow brown fine SAN						
	OC-58-408-0.0/1.0-XXX		18:00	SORTED, med. danse, dry, Non-plastic, s		SP	Y			
				allyvium - Looks natural but Likely dist	unbed	"	,			
,				,	PID=0					
		2 / 5	1/1 =	Sample Time @ 11:00		-				
	5-2 10-4.0	3.0/1.3	11:05	1-3.6' As Above; mostly black fine	SAND,	SP				
				tr. yellow brown fine SAND,	Sec. 54.00	1 ' 1				
				31-4 Abrupt Change To yellow From	me samos					
4				31'-4' Abrapt change to yellow brown for local Sorted, Loose, Non-plastic, Cle	TO SO					
7	5-3 40-7.0	30/2.6	//://	As Above to 6.4, gellow brown fine S	70.0					
	J J 7.0	30/3.6	77.17	6.4-7' hight grayish brown time SAM						
				Gested loses to med do so do no	, j., joset	52		- 1		
				Sorted lease to med donse , dry , non	· prastic	1 1	1 13	- 1		
7'	7.0-9.0			Stratified Accurrum P	ID=0					
<u> </u>	5-4 7.000 Ja	2.0/2.0	11:15	Light grayish brown fine SAND, to.	fines		V			
	OC-58-408-70/20-XX		1/:20	Increase up depth, very well sort	ed med	SP	Y			
	7			deise wat no - Namin of the						
				daise, wet non-plastic, stratifi	,					
9				alcyvium ==7 P	IO=0					
,				B.O.B. @ 9.0' REFUSA TO Drike	TOOLS					
				0.010.			1			
π'						$\vdash$				
								- 1		
N. f										
Note	25									
								- 1		
								- 1		
								1		
				transitions may be gradual. Water level readings have been made at times	Page	OF	21			
and u	utilication lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times under conditions stated. Ructuations of groundwater may occur due to other factors than those present at the time measurements were made.    Page									
					Boring:	5B-	408			

	A .		Project: Olin Chemical Superfund Site					
	MAACTEC			0.	,,,			
	MACTEC		Location: Wilmington, MA	Boring: $S\ell$	,-4	09		
			Client: Oli A	File No.:				
2	5 (1)	Dalling I	Method: Robo Sonic	Definitions:				
	ractor: Roart hongyeur	Doming	Hethod: Riv Sonic	S = Split Spoon Sample				
	ator: Dale Dyscher		e IDIOD: 47/00 inner custy/1000 or sectorsing	U = Thin Wall Tube Sumple				
Logg	ed By: Jerry Rawcliffe	Auger ID		R = Rock Core Sample V = Insito Vane Shear Test	•			
	ked By: CTM	Sampler		e Strength (	psf)			
Date	Start/Finish: 80009		Wt/ Fall: NA'	mer				
Borii	ig Location: Aren 7	Water Le	evel3: 1014 Measured in broschiele.					
Ref.	Elevation¹:			oe = Organic Content, perce	ĭ			
	Sample Information							
	Campic micrimadon				Ē			
					≗			
	-≤		Comple Description and Classification		<u> </u>	cal	5	
_	) ×		Sample Description and Classification		ed F	¥ 5 -	Ħ	
Depth	Sample No.	Time			ije Bes	<u>a</u> = (2)	Elevation	
Ö	Sample No.	Ē			Unified Classification	Analytical Collected (Y/N)	<u>ū</u>	
	Run #1 0-5' 3.7	1645	0-0.2 Asplula	fless. s	Siv			
	UC-50-429-0/12-12xx	11050	0-100 Darly bones to brune finet	5 AD=1.7		Yes		
	0C-30-404-0710-1CE	11930	consist it and the state of the	sill	SP	, -,		
			coarse sunt and grand, Moist mas Bubyrade fill)	20.9	75			
			(vor france Hill)	. 4				
			100-1. 5 Dark brown to very dark brown	Hobbert				
			für tourdin sundursist.	20.6	SP			
			The formand scommons.					
			1.5-5.0 Yellowish brown to brown fin Sund i Vingmoist sand Luyeis with brown layers here bottom of entered	to wedie		1		
-			Sured il marcist spublingers with	Have 10mm				
_			bound have house hottern who sure and	00000				
5			0,10001	= 0.7				
	P 4 0 1 11 C	11.0	Commence of the state of the st	.04 0				
	Run#2 5-10 419	1650	5-6:5 followish borns to light dure one Ras to mediur suil. Wet, slightens thed appearance in middle of internal.	AD20.5	-0			
			tracto medius such west, slight wo the		SP			
			appearance in middle of interval.	A				
	DC=51-41/4-6/5-1010L	82	6.5.7.7 Dank gru to gray Pine to wedien with a trace of site wet stratified.	Soul 233				
	J-7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	8	with a traver while what chatified					
		-	7777 77					
			7.7-9.5 Olmebrown Freiocoarse sound	wall 20.7	0			
	OC-5B-409-6/8-XX	1705	a trace of sitr. Wet, stretched.	0,7	SP			
	00 30 10 07 0 00			1. coul				
			8.5:10 Gruto darkolungry fine to 1	wellery source	Su	/		
4.3			and ground with a trace of course	sure =0.6	1	P		
10			and citte Wet Nounusual oclos	5 defeate.	/-	/		
	Runt 3 10-15 3.9	1700	10-14 Gray to olive gray fine to coors	e. P10=0.4				
	1,000		considerate contracts of	AA CIL	GM			
			sandant grand with space to a land trues of college. Wet, massa	24 76 16	10	$\omega$		
		-	and there or commer. Confuces an	2015	. "			
			No unusuladores destera	ted.				
			14-14 Yellowish burny fixetocowse sa and grand with a little silt. Moise	2 = 0,0				
			TO THE STATE OF TH	_				
			amognica with a little self, Whoise	27.3 14			- 1	
			massin	20,4				
				20.3				
Note	es							
	<u> </u>							
							- 1	
							- 1	
							- 1	
2								
							- 1	
Strati	fication lines represent approxigitate/boundaries b	etween soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / o L	2			
and	nder conditions stated. Fluctuations of groundwa	ter may occur du	to other factors than those present at the time measurements were made.	7 0	O			
(	Jean Buld !			_ ^ ^	10.			
7 ا	1/1/			Boring: 5 <i>B</i> -409				
L								

	MACTEC		Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: SB-409 File No.:				
Chec Date	ractor: Roart havingencerator: Date Ouself to get By: Term Rauchtte: sked By: CTm Start/Finish: 874000 mg Location: Arca 7 Elevation:	Bore Ho Auger ID Sampler Hammer		Definitions:  S = Split Spoon Sample U = This Wall Tobe Sample R = Rock Core Sample V = Insitu Vane Shear Test q, 2 Unconfued Compressive Strength (psf) woh = weight of 140 In hammer wor = weight of rods we = Watter Cortent, percent oe = Organic Content, percent				
Depth	Sample Information	Time	Sample Description and Classification			Analytical Collected (Y/N)	Elevation	
15	Sample No. &	17/0	15-15. Thellowish bosom to yellowis olive brown Line to coorse soul and with some to a little silt and a little to the cobbles blot massure letted 18.5 Encountry from material colder or hearth.  Est mate to p of bedruch at 15.5	h ADEO.5	Classification	.	ш	
20			18.5' Encouring firm material colder or helpel. Est made to portadruch c+18.5 Bothorof bority = 20'B65.	20.4 1865 = 0.6 20.6				
			With Mr.					
				20.31				
Note	<u>s</u>							
Strati and u	fication lines represent approximate boundaries between conditions stated. Fluctuations of gujundwater	reen soil types, may occur du	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page $20F$ Boring: $50$	2 -40	9		

	MAA			Project:	Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location:	Wilmington, MA	Boring:		SF	3-409	
	WINGI				•	_		51	<b>J</b> -407	
				Client:	Olin	File No.:				
_			T			~ ~				_
_	tractor: Boart Longyear			lethod: RotoS	Sonic " OD inner casing/ 6" OD outer casing	Definitions: S = Split Spoon San				
	rator: Dale Duscher		1		U = Thin Wall Tube R = Rock Core Sam	iple .				
	ged By: Jerry Rawcliffe cked By: CTM		Auger ID		V = Insitu Vane Sh $q_p = Unconfined Co$	mpressive	Strength (	psf)		
	Start/Finish: 8/26/2009						0 lb. hamr ls	ner		
_	ng Location: Area 7						t, percent nt, percen			
	Elevation:									
	Sample Information	on								
								ء		
		_						) Hio		_
		Recovery			Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
Depth		6	Time			d) c	ifie	S le d	vat	
De	Sample No.	Re	įΞ				PIC	<u> </u>	3 S B	Ele
	Run #1 0 - 5	3.7	1645	0-0.2' Asph	alt					
	OC-SB-409-0/1.0-XXX		1650	1	s brown to brown fine to coarse sand and grav	el.	1.7	SW	YES	
				Moist, mass	sive, (sub grade fill).					
				1155						
				medium sai	brown to very dark brown to black fine to		0.9	SP		
				medium sai	id. Worst.					
					owish brown to brown fine to medium sand. V		0.6			
					e layering with thin (10mm) brown layers near	•		SP		
				bottom of i	nterval		0.7			
5										
	Run #2 5 - 10	4.9	1650	5-6.5' Yellowish brown to light olive brown fine to medium						
					sand . Wet, slightly mottled appearance in middle of interval.					
				6.5-7.7' Da	ark gray to gray fine to medium sand with a tra			SP		
				of silt. We	t, stratified.		3.3			
				7785 01	ive brown fine to coarse sand with a trace of si	1+				
				Wet, stratif		11.		SP		
	OC-SB-409-6/8-XXX		1705	,	y to dark olive gray fine to medium sand and		0.7		YES	
				_	a trace of coarse sand and silt. Wet.					
				No unusual	odors detected.		0.6	SW/Sl	P	
10										
	Run #3 10 - 15	3.9	1700							
					y to olive gray fine to coarse sand and gravel		0.4			
				with some t	o a little silt and traces of cobbles. Wet, massi	ve.		GM/C	3W	
				No unusual	odors detected.					
							0.5			
			-				0.4			
					owish brown fine to coarse sand and gravel w Moist, massive	ith	0.4			
			-	a mue sm. i	vioist, massive		0.2			
1.5							0.3			
15 Not										
Note	<u>53</u>									
							)	$\sim$	011	1
						Jerry.	1/	Kn	u~lll/	
						yeng.	/ ` ·	,	~ "M!	
						v			1 0	
Strat	ification lines represent approximate b	oundaries he	ween soil type	s. transitions may be	gradual. Water level readings have been made at times	Page	1 of 2	,		
and	under conditions stated. Fluctuations	of groundwate	er may occur du	ie to other factors th	an those present at the time measurements were made.	ı- aye	1 01 7	_		

Boring:

	MACT	EC		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin	Boring: File No.:		SE	<b>3-409</b>	
	ractor: Boart Longyear			Method: Rotos		Definitions: S = Split Spoon Sa				
	rator: Dale Duscher		ï		8" OD inner casing/ 6" OD outer casing	S = Split Spoon Sa U = Thin Wall Tul R = Rock Core Sa	e Sample			
Char	ged By: Jerry Rawcliffe		Auger ID	/OD: NA : Dave Chapm	222	V = Insitu Vane S q <sub>p</sub> = Unconfined C	hear Test Compressive		psf)	
	Start/Finish: 8/26/2009			Wt./ Fall: NA		woh = weight of 1 wor = weight of re	ds	ner		
Borii	ng Location: Area 7				sured in borehole	wc = Water Conte				
Ref.	Elevation:									
	Sample Informat	ion	1							
Depth	Sample No.	Recovery	Time		Sample Description and Classification	n	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 20	4.1	1710	15-18.5' Y	ellowish brown to yellowish olive brown f	ine to				
			<u> </u>	coarse sand	d and gravel with some to a little silt and a	little to	0.5			
	OC-SB-409-15/17-XXX		1715	1	obbles. Wet, massive.  1 odors detected.		0.6	GW/G	YES M	
					ountering firm material . (cobbles or bedro	ck).	0.4			
		ШП	ш		op of bedrock at 18.5' bgs. boring = 20' bgs.		0.6	Ш	Ш	Ш
20				Dottom of t	boring – 20 bgs.		0.6			
20			1				0.0			
			<u> </u>							
			1							
			<u> </u>							
			1	1						
			<u> </u>							
Note	<u> </u>									<u> </u>
	<u>~</u>					Jeny 7	12. N	Cau	rffe	/
Strati and u	fication lines represent approximate inder conditions stated. Fluctuations	boundaries bet s of groundwate	ween soil types r may occur du	s, transitions may be ue to other factors th	e gradual. Water level readings have been made at times han those present at the time measurements were made.	Page Boring:	2 of 2		3-409	

	MACTEC				Soring: $SB-410$ ile No.:			
Ope Log Che Date Bori	tractor: Board hunger rator: John Cralla ged By: Jenn Rawel IFM cked By: C7m Start/Finish: 8/27/09 ng Location: 18/16/16/16/16	Bore Ho Auger ID Sampler	1/00: NA: Dave Chip man Wt/Fall: MA	Definitions:  S = Spin Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insite Vane Shear Test  q, = Unconfined Compressive Strength (psf)  woh = weight of 140 lb. banuner  wor = weight of rods  we = Water Content, percent  oe = Organic Content, percent				
Depth	Sample Information  Sample No.	Time	Sample Description and Classification			Analytical Collected (Y/N)	Elevation	
	10c-5B-410-410xx	1005	0-1.1 Brown to dark bus modum sund with somegrand trucks of coarse sun and Fraguets of asphilt like 4 frags. Worst.	+	SP			
5	Run#25-10 9.4	1010	1.1-3 Darkbrowy Fixe to weekin 5000 with a trace of 51H. Moist to very mois some struction of 525, 5, 5, Dark grangement layer with fine is such to the reduction brown file media.		5P GP			
	OC-50-410-6/8-XXX XXD XXM5/MC1	1015	of coarse sund and and gravel uper 27BCS. Wet.	ries at	5P/ 16P	Yes		
10	Rut 3 10-15 4.0	1015	8-10 Olive bonunts olive grapho 5 mil with some coarse soul gra a cotables and cit. Vayous No unusual odos distribed 10-11.5 Olive brogen to olive are	ud un	GP/6	iy'		
			colobles. Wet, massel	Sund and	Chy CF			
15			grand with a little site and truces of while West to very moist, massal.  No vivisual odors described.	50.4	GNJ GR			
Note	<u>es</u>							
			to other factors than those present at the time measurements were made.	Page / of	•	2		

	ABB		Project: Olin Chemical Superfund Site	and the state of t					
	MACTEC		Location: Wilmington, MA	Boring: 5B	-4	(10			
			Client:	File No.:					
			Olia	·					
Contr	ractor: Boart hungeur	Drilling I	Method: Rotu Son, c	Definitions:					
Opera	ator. John Crafia	Bore Ho	10/00: 47/6" 010 jany custy/6"00 outross	S = Split Spoon Sample U = Thin Wall Tube Sample					
	ed By: Jenn Rawdiff		1/0D: NA	R = Rock Core Sample V = Insitu Vane Shear Test					
	ked By: CTM	Sampler	: Dave Chepman	a = Unconfined Compressive Strength (psf)					
	Start/Finish: 827/09		Wt/ Fall: MA	web = weight of 140 lb. hammer wor = weight of rods					
	g Location: New (0	Water Le	vel":	we = Water Content, percent oe = Organic Content, percent					
		-							
lŀ	Sample Information	Τ			Ē				
Depth	Sample No.	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
Ŏ			dark o		<u> </u>	405	Ш		
15	Putry 15-20 3.8	1110	15-17 Olive gray to ging fine to coarse sund and grand on the a little sit a coolers. Very moist to net, massic	PB	6W				
l f			cobiles. Very work to the a 1190 3118 a	-ex					
H			17-19.5 Carrie de du de man traditio consed de	wo do	. ,				
lŀ		<del>                                     </del>	coase sand and south with some	The and	Cul	u.			
	UC-SB-410-17/19-KK	1115	colles. Vey moist former.	1	Tes				
			17-19.5 Great of duringry to oblingment of const soul and sound with some collect. No versual octors detect		76.7				
			Bruntal hardmutard at 19.5-85thm	ateton					
اجا	7/3	100	at he dough.	1 =0,2		.			
20	// / /	127							
l			Bottom of bory = 20'BGS.						
1 +				1					
<b>l</b>				- 1					
lt									
					Ï				
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		l	a harakan and a same and a same a						
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Notes	<u>s</u>								
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							- 1		
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1									
C+-4"	cation lines represent approximate boundaries betw	en cail tone	transitions may be gradual. Water level readings have been made at times	Page A A	_				
and up	ter conditions stated. Fluctuations of groundwater	may occur due	transmorts may be granual. Water lever resumps have been made at times to other factors than those present at the time measurements were made.	Page 2 of	4				
	Lenz Coulf			Boring: 56	411	`			
(	/ // *///			During. JD	700	,	- 1		

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: File No.:		SE	<b>3-410</b>		
Con	tractor: Boart Longyear		Drilling N	Method: RotoSonic	<b>Definitions:</b>					
	rator: John Gralia			e ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing	S = Split Spoon San U = Thin Wall Tube					
Logo	ged By: Jerry Rawcliffe		Auger ID/		R = Rock Core Sam V = Insitu Vane She	ple				
	cked By: CTM		_	Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 140	mpressive	Strength (	psf)		
	Start/Finish: 8/27/2009			Wt./ Fall: NA	wor = weight of rod	s	iici			
	ng Location: Area 6			vel: 3-3.5' based on soils	wc = Water Content oc = Organic Content					
	Elevation:				1					
	Sample Informat	ion								
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation	
	Run #1 0 - 5	3.3	1005					100		
	OC-SB-410-0/1.0-XXX		1010	0-1.1' Brown to dark brown fine to medium sand with son gravel and traces of coarse sand and silt. (loamy topsoil). Fragments of asphalt-like 4" pipe and some root fibers.	ne	0.1	SP	YES		
				Moist. 1.1-3' Dark brown fine to medium sand with a trace of silt.		0.2	SP			
				Moist to very moist, some stratification.		0.1				
				3-3.5' Dark brown gravel layer with fine to medium sand Wet.	•	0.3	GP			
5			+			2.7	SP			
	Run #2 5 - 10	4.4	1010			2.7	51			
	10 m2 3 10			5-6' Very dark brown fine to medium sand and gravel.  Likely decomposed organics. Wet, slight swampy; sulfur odor.		0.1	SP/GP			
	OC-SB-410-6/8-XXX		1015	Sulful Odol.		0.2	SI/GI	YES		
	-XXD		1013	6-8' Brown fine to medium sand with traces of coarse		0.2		1125		
-	-XMS		++	sand and a gravel layer at ~ 7' bgs. Wet.						
	-AIVIS		+	8-10' Olive brown to olive gray to olive fine to medium		0.1				
				sand with some coarse sand and gravel and a little			GP/G	M		
				cobbles and silt. Very moist to wet, massive. No unusual		0.4				
10										
	Run #3 10 - 15	4.0	1015	10-11.5' Olive brown to olive fine to coarse sand and grav	el					
				with a little silt and traces of cobbles. Wet, massive.		0.3				
							GM/C	SP		
				11.5-15' Gray to olive gray fine to coarse sand and gravel		1.1				
				with a little silt and traces of cobbles. Wet to very moist,						
				massive.		0.2				
				No unusual odors detected.			GM/C	βP		
						0.4				
15										
Note	Jerry 7. Rowlff.  Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times  Page 1 of 2									

Boring:

	<b>MACT</b>	EC		Project: Location:	Olin Chemical Superfund Site Wilmington, MA	Boring:		SE	3-410	
	IVII IO I	LO		Client:	Olin	File No.:			7 410	
										_
	tractor: Boart Longyear			Method: Rotos		Definitions: S = Split Spoon Sa	mple			
_	rator: John Gralia		Auger ID		B" OD inner casing/ 6" OD outer casing	U = Thin Wall Tub  R = Rock Core Sar	mple			
	ged By: Jerry Rawcliffe cked By: CTM			: Dave Chapm	nan	V = Insitu Vane SI q <sub>p</sub> = Unconfined C	compressive	Strength (	psf)	
	Start/Finish: 8/27/2009		•	Wt./ Fall: NA		woh = weight of 14 wor = weight of ro wc = Water Conter	ds	ner		
	ng Location: Area 6			vel: 3-3.5' ba		oc = Organic Conte		t		
Ref.	Elevation:									
	Sample Informat	ion								
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 20	3.8	1110	15-17' Oliv	ve gray to dark gray fine to coarse sand and g	avel				
				with a little	e silt and cobbles. Very moist to wet, massive	•	0.1	GW		
					Gray to dark gray to olive fine to coarse sand a	nd				
	OC-SB-410-17/19-XXX			1	n some silt and cobbles. Very moist to wet.		0.4	GW/G	M YES	
	00 00 110 17/19 10111			No unusual	l odors detected.		0.2		TES	
					ountered hard material - estimate top of bedroo	k.	0.2			
20				Bottom of	boring = 20 ' bgs.		Ш	Ш		
				1						
L				]						
Note	es						1	I .		
						Jeny-	7<.	Ro	whff	
Strati and u	ification lines represent approximate under conditions stated. Fluctuations	boundaries bet of groundwate	ween soil type: er may occur du	s, transitions may be ue to other factors th	e gradual. Water level readings have been made at times han those present at the time measurements were made.	Page	2 of 2	2		
						Boring:		SI	<b>3-410</b>	

	MACI	EC		Project: Olin Chemical Superfund Site  Location: WILMING でル MA  Client: OLIN	Boring: 5용-4// File No.:							
Ope Log Che Date Bori	tractor: ZEBRA rator: E. PLANK ged By: T.D. LONGLE cked By: CTM e Start/Finish: BJH 3-2 ng Location: BUTLEA  OFFICE- Elevation <sup>1</sup> :	6-09 Building	Drilling I Bore Hol Auger ID Sampter Hammer Water Le	e ID/OD: 1.58° / 2° VOD: NA : T.D. LONGLEY Wt./ Fall: NA	Definitions:  S = Spin Spoon Sample  U = Thm Wall Tube Sample  R = Rock Core Sample  V = Institu Vane Shear Test  q = Uarontimed Compressive Strength (psf)  woh = weight of 140 lb. hammer  war = weight of nods  we = Water Content, percent  oe = Organic Content, percent							
Depth	Sample Informat	DR.いだ/ uoi	Time	Sample Description and Classification	ption and Classification			Elevation				
	5-1 0-1.0 OC-SB-411-0.0/1.0-xxx	1.0/1.0	10:20	yeurwbrown time SAND, well sorted, boss Non-plastic, tr. f. gravel - FILL	e, dry,	SP	Y					
1					PID=0							
	5-2 1.0 - 4.0 3.0/2.2 10:2			gellow brown fine SAND, well sorted, low Non-phastic; books like fill	SP							
4'					PID=0							
7	5-3 4.0-7.0 3.0/3.0 10:26 0C-5B-411-4.7/6.3-xxx			As above, but or black gravel to 4.8'. 4.8-7' yellow brown to tap fine SAND, loose to med. dense, wete 6.7', stratific plastic, accurrent	yeu sorted, ed, na- PID=0	5P	Y					
8'	5-4 7.0-8.0	1.0/1.0	10:32	As above we thin 0.2° fine gravel band REFUSM @ 8° Trace sixt	e 7.3'-7.4' PID=0	SP.						
				B.O.B. @ 8.0' REFUSAL to Drive	TOOLS							
Note	Notes  DRILLED INSIDE BUILDING											
	Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Ructuations of groundwater may occur due to other factors than those present at the time measurements were made.    Page											

	MACTEC		Project: Olin Chemical Superfund Site Location: Williams & W.  Client: OLIN	Boring: SB-412 File No.:					
Cont	tractor: Branchonnew	Drilling I	Method: Roto Sourc	Definitions:		-			
Ope	ractor: By arthuryear rator: Dale Duscher	Bore Ho		S = Split Spoon Sample U = Thin Wall Tube Sample					
	ged By: J. Rawalifle		10D: NA '	R = Rock Core Sample V = Insitu Vane Shear Test					
	cked By: C. Marrolini		Dave Chapping	q <sub>p</sub> ≃ Uncontined Compressiv		psf)			
	Start/Finish: \$1809		Wt./ Fall: NA	weh = weight of 140 lb. han wer = weight of rods	uner				
	ng Location: Area 7	Water Le	vel3: 27.0' Bused on sample observations	we = Water Content, percent					
Ket.	Elevation <sup>1</sup> :		1	oc = Organic Content, perce					
l	Sample Information	_		L					
Depth	Sample No.	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
	Run #1 0-5 3:5	1240	Top 0, 2' Asphilt 0,2-0,5 Fill 0,5-1,0 Coursete	P10=1.0					
	OC-5B-412-0-1W-XXX	1245	1. 3 - 2.0 (sorfresoil sandle top I below co: park-lonour fine said to the some weding trover of coarse send and grand. Moist	verete), u sand ourl massil	5P				
5	Ru#25-10 5:0	1250	2.0-5.0 hight brown to dork brown fine and with some mediur sand, with tries of crosses and. Berows lighter cohered with depth 5p very uniform quip size. Moist, massue. 5-7 Brown to light brown fine to medium						
	OC-5B-412-5.2-6.0- XXX	1855	sound with or res of coorse sand and gre Moist to very moist, some reddishisting to be iron standing and stone would from		5P	136			
10			7-10 Brun to other from five to coarse gravel with some sitt. Very moist, massi range of grain stress. No obvios odors.	-O.b	5W				
70	Runt 3 10-13.0 2.5	1300	10-12.5 Olive to olive zong gravel with fine to coarse send cond colles and son sit. Wet, massine, no apprent staining o	9102 0.4	CW		0		
	OC-5B-412-12-15-XXX	1310	125-13 Similar to above but some lighter	colored		Y			
15			yellowish excess. Appear to how hit he at 17.5. Went buth down bouchule and drilled stall in very deuse hund (bedroch?)	dual PD=0.5 to =13.4 BGS nedericl.					
	iffication lines represent approximate boundaries be under conditions splints. Fuctuations of groundwate		Bottom of boving 13.4' BGS Topo to be transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	thedroch e e 12,5'BCS	estin	wel			
d	ery (al) 8/18/91			Boring: $SB$	-41	2			

	Alla-			Project: Olin Chemical Superfund Site					
	<b>MACT</b>	EC.		Location: Wilmington, MA	Boring:		SB	-412	
				Client: Olin	File No.:				
Con	tractor: Boart Longyear		Drilling N	Method: RotoSonic	<b>Definitions:</b>				
Ope	rator: Dale Duscher		Bore Hol	e ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing	S = Split Spoon Sar U = Thin Wall Tub	e Sample			
	ged By: Jerry Rawcliffe		Auger ID		R = Rock Core San V = Insitu Vane Sh	ear Test			
	cked By: CTM		i	Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 14	0 lb. hamn	Strength ( ner	psf)	
	Start/Finish: 8/18/2009			Wt./ Fall: NA	wor = weight of roo wc = Water Conten	t, percent			
	ing Location: Area 7 Elevation:		water Le	vel: ~7.0' based on sample observations	oc = Organic Conte	nt, percent			
	Sample Informat	ion							
	Campio informat						٦		T
		>				<u>-</u>	Unified Classification	<del>_</del>	ے ا
ے ا		Ver		Sample Description and Classification		ndc	ازز و	rtica	ţį
Depth		Recovery	Time			PID (ppm)	Unified Classifi	Analytical Collected (Y/N)	Elevation
۵	Sample No.		î .				בֿ כֿ	<u> </u>	□
	Run #1 0 - 5	3.5	1240	0-0.2' Asphalt					
			1245	0.2-0.5' Fill		1.0		YES	
	OC-SB-412-0/1.0-XXX		1245	0.5-1' Concrete. 1-2' (Surface soil sample top 1 foot below concrete) Dark		1.0	SP	TES	
	OC-SB-412-0/1.0-XXX 1243		1243	brown fine sand with some medium sand and traces of			51		
				coarse sand and gravel. Moist, massive, uniform grain size.					
				No apparent structure or odors.		0.9			
				2-5' Light brown to dark brown fine sand with some mediu	ım				
				sand with traces of coarse sand. Becomes lighter colored v		0.7	SP		
5									
	Run #2 5 - 10	5.0	1250						
				5-7' Brown to light brown fine to medium sand with trace	s of	0.9			
	OC-SB-412-5/6-XXX		1255	coarse sand and gravel. Moist to very moist, some reddish			SP	YES	
				staining (appears to be iron staining) and some wood		0.7			
				fragments/debris (Fill)					
				7-10' Brown to olive brown fine to coarse sand and grave	1	1.1	CIV		
				with some silt. Very moist, massive, wide range of grain		0.0	SW		
				sizes. No obvious odors.		0.8			
10						0.6			
10	Run #3 10 - 13	2.5	1300			0.0			
		2.5	-500	10-12.5' Olive to olive gray gravel with fine to coarse sand and cobbles and some silt. Wet, massive. No apparent	1	0.4			
				staining or odors.			GW		
1				_		1.7			
	OC-SB-412-12/13-XXX		1310	12.5-13' Similar to above but with some lighter colored				YES	
			ШШ	yellowish areas. Appear to have hit bedrock at 12.5 'bgs.		Ш			Ш
				Went back down borehole and drilled to 13.4' bgs - still in		0.5			
				very dense hard (bedrock?) material.					
				Bottom of boring 13.4' bgs.					
15									
Not	<u>es</u>								
									ļ
							_	. 11	ļ
					Jeny 7.	) [k	2	-UIII a .	/
					yerry 1.	` . V`	\	Mr	
					v )			1	

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 1

Boring: SB-412

	MACTEC		Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client: Olin	Boring: 56-413 File No.:					
Ope Loge Che Date Bori	ractor: ZERPA rator: Jason Fredericks ged By: Jony Rawdiff cked By: Chris Mandim start/Finish: 91709 ng Location: 1974	Bore Ho Auger ID Sampler Hammer	Method: Direct Push le ID/OD: 115 / 3 estimaty 1/OD: NA 1: Dane Chapman Wt./ Fall: NA 1: Vel3: GW = 2 1065 based on 5 ods observable	Definitions: S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressiv woh = weight of 140 lb. han wor = weight of rods we = Water Content, percen oe = Organie Content, percen	we Strength on noner	(psf)			
Depth	Sample Information  Sample No.  Security U-5 2.9  00-58-413-0.0/1.0-444	1110	Sample Description and Classification  0-0.5 Ourtz brown organic debris twiss, heaves, proceedles etc. becomy a with depth. Moist.	PIDZO	A Analytical Collected (Y/N)	Elevation			
5	0c-5B-413-11/510-XXX Showet 2 5-10 1,9.	1020	0.5-2.5 Dark reddish brown to decle brown brown five to medium sout with some material. Very moist to wet. 2.5-5' Cline brown to brown grown contine is brown to olive brown medium sur Wet.  5-10 hight olive to light olive brown fine to medium sand with some coc and greet and a true of while S. Wet No un seed who seed undors	organic coblates	Gw/ Kw	Yes			
10	Sleeve #3 10-12 1.3 0x-56-413-10/12-22	1030	10-12' higher other brown fine to cooke some and grown with transcord cooklessend Welfmassing No une soul odors	50 f pin=0 silr. =0.1	GW/ Kw	Yes			
15 Note	<u>es</u>		Refusal with Direct Push on Bottom of bowing = 12'B65	+ 12'865					
Stra	fication lines represent approximate boundaries be inder conditions stated. Fluxuations of grydnyda	een soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 0/ Boring: 5/3	'	13			

	MACI	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin	3-4	114					
	2 41		la	1 . 0 . 6 . 6	2 2 11						
Con	tractor: Roart hone	yeur_	Drilling N		Definitions: S = Split Spoon Sample						
	rator: Dale Dysch			e ID/OD: 47/000 inner cury/6000 obertasing	U = Thin Wall Tube Sumple R = Rock Core Sample						
Logg	ged By: Jeny Kawc	(4HC	Auger ID								
Che	cked By: CTM		Sampler	Dave Chapman	V = Insitu Vane Shear Test  q = Unconfined Compressiv	e Strength (	pst)				
Date	Start/Finish: 8 26	ì		Wt/Fall: NA	wob = weight of 140 lb. han						
Bori	ng Location: Area 6	,	Water Le	vel3: 14.2' Mensured in Brokels w/ caring	wor = weight of rods we = Water Content, percent						
	Elevation1:		47	Based on SOFIS	oe = Organic Content, perce						
<b>—</b>	T	•		The state of the s		-					
	Sample Information										
Depth	Sample No.	Recovery	Time	Sample Description and Classification			Analytical Collected (Y/N)	Elevation			
	alux 171	3.5	0835	Concreteslab 0:-0.7	P110=0.2						
	06-515-414-0/1.0-		0-2 higher brown fiveto coarse said with some to a little collass. Day, in (Pell).	and gound	5 W/6	ω					
	2-5' Brown to dark brown fine to wedien 50.3 sunhwith trees of grovel, warse seed, audst Moist, wassend, in Forngeriesee =0.5										
5											
	Routt 25-10	4.3	0840	5-5.5 highs brunto brung fine to coo aml and grand. 5.5-8 Brown to dash brown fine for a with a true of to assessed and gamel. It moist to ret some layens with light darter wholed brights		50					
		ļ.		with a true of course such autsamel , de	3						
	OC-5B-414-618-)	Lot	0845	moist to met some luques with lich	tet and						
<b>—</b>	01 10 11 ( 9/0 )	17w	11.12	ducter whord trues	···						
10	Run#3 10-15	4.1	0845	S-10 Black to dark reddish brown Pine to sund with trace of grand, sitt and or organic anterior glong black brigger at 8 16 way descriptions.	puric delais.	Рэ 5Р					
	KMH 2 10-12	7./	0075	10-11. 5 Brown Line to median sunt with	a PID = 0.4	SP					
				little to a torlot coarsescul, We luyoning of colors, otherwise massas. 11.5-12 Grand and cibble loyer in brown of i	+ 150me y-medica 20.7 let.	6P					
				12-15 higher brown to brown fine to c surland grand with a little wholes a of sit. Wet, massus.	ouse 203	GW					
15		<del></del>			2000			- 1			
Note	fication fines represent approximate l	oofwateries between a grown water	een soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page /ok	2					
	Va. 1/2	1/1			L		. 1				
	yeng rung	// 0			Boring: 5 B	<u>- 41</u>	9				
(											

	MACT			Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: <i>SB</i> File No.:	41	4		
Oper ogg Chec Date Borir	ractor: Road hong ator: Dule Dusch led By: Jenn Rauch ked By: C7m Start/Finish: 570 091 ng Location: Fren 6 Elevation:	litte	Bore Ho Auger IE Sampler Hammer Water Le	: Dave Chapman W. Fall: NA	Definitions:  S = Spiti Spoon Sample U = Thin Wall Take Sample R = Rock Core Sample V = Insite Vane Shear Test q, = Unconfuned Compressive Strength (psf) wash = wright of 140 lb. hammer wor = wright of 170 lb. hammer wor = wright of rods we = Watter Content, percent oe = Organic Contents, percent				
	Sample Informat	ion		- Vesco de Solos	1		<u></u>		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
15	Rumen 15-23	7.0	UTIOS	15-17.5 Park bowen to bowen to shie to vive going five to meditured with a sound continued. Wet somepossible layer but distanced by dolly.	PIV: U.7 hale course my 20.4	SP			
				17.5-22 Gry toolight olwegry fine send and grand with a libb site cobbles. Wet, massin	to coane and	Cuy	eu l	-	
ω				22-23 h. for some a del les cuel one	····l				
	OC-SB-414-20/2	-XXd	0910	roch floor. Columned bedrock). Extinent top of rich to be 22'	=0.6 =0.2				
-	/× y	$\times \times$	XI	Bottom of Barry = 23'B65	20.3	-			
					300	R			
25					43	<b>93</b> )			
}									
lote	<u>s</u>			- 1					
Stratifi	- 23	oylightagiffs beginn	en soil types,	transitions may be gradual. Water level readings have been made at times	Page D .	2			
and un	fer conditions stated. Fluctuations of	arounawater t	nay occur due	to other factors than those present at the time measurements were made.	Page <b>Q</b> .+ Boring: 55-	414	(		



Project: Olin Chemical Superfund Site

Location: Wilmington, MA

Olin Client:

**SB-414** Boring:

File No.:

**Drilling Method: RotoSonic** Contractor: Boart Longyear Bore Hole ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing Operator: Dale Duscher

Logged By: Jerry Rawcliffe Auger ID/OD: NA

Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 8/26/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 6** Water Level: 14.2' measured in borehole with casing

Ref. Elevation: approximately 7' based on soils **Definitions:** 

S = Split Spoon Sample
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test

**q**<sub>p</sub> = Unconfined Compressive Strength (psf) **woh** = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Informat	tion		approximately 7 based on soils				
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.5	835	0-0.7' Concrete Slab				
	OC-SB-414-0/1.0-XXX		840	Control bine	0.2		YES	
				0-2' Light brown fine to coarse sand and gravel with some to a little cobbles. Dry, massive. (Fill)	0.6	SW/C	<b>W</b>	
					0.3			İ
				2-5' Brown to dark brown fine to medium sand with traces of gravel, coarse sand, and silt. Moist, massive, uniform grain	0.5	SP		
				size.	0.5			
5								
	Run #2 5 - 10	4.3	840	5-5.5' Light brown to brown fine to coarse sand and gravel.				
					1.5	an.		
				5.5-8' Brown to dark brown fine to medium sand with a trace of coarse sand and gravel. Very moist to wet. Some layering		SP		
	OC-SB-414-6/8-XXX		845	with lighter and darker colored layers.	0.3			
				8-10' Black to dark reddish brown fine to medium sand with traces of gravel, silt, and organic debris. Organic material	0.5	Pt		
				along black layer at 8' bgs - leaves, twigs, very decomposed.  Wet. uniform.	0.7	SP	YES	
10				,				
	Run #3 10 - 15	4.1	845	10-11.5' Brown fine to medium sand with a little to a trace of coarse sand. Wet, some layering of colors, otherwise massive.	0.4	SP		
				11.5-12' Gravel and cobble layer in brown fine to medium sand with a trace of coarse sand. Wet.	0.7	GP		
					0.3			
				12-15' Light brown to brown fine to coarse sand and gravel with a little cobbles and traces of silt. Wet, massive.	0.6	GW		
15								
Note	25							

<u>Notes</u>

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**Boring:** 

	MACT	EC		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin	Boring: File No.:		SF	B-414			
Cont	ractor: Boart Longyear		Drilling N	lethod: RotoS	Sonic	Definitions:				_		
Oper	ator: Dale Duscher				" OD inner casing/ 6" OD outer casing	S = Split Spoon San U = Thin Wall Tube						
Logg	ged By: Jerry Rawcliffe sked By: CTM Start/Finish: 8/26/2009 ng Location: Area 6 Elevation:		Auger ID	/OD: NA		R = Rock Core Sam V = Insitu Vane She	ple					
Chec	ked By: CTM			Dave Chapm	an	q <sub>p</sub> = Unconfined Co woh = weight of 140	mpressive		psf)			
Date	Start/Finish: 8/26/2009		Hammer	Wt./ Fall: NA		wor = weight of rod	s	nei				
Borii	ng Location: Area 6		Water Le	vel: 14.2' mea	sured in borehole with casing	wc = Water Content oc = Organic Content						
Ref.	Elevation:			approximately 7' based on soils								
	Sample Informati	ion		• •	•							
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation		
15	Run #4 15 - 23	7.0	905	medium san	ark brown to brown to olive to olive gray fine and with a little coarse sand and gravel. Wet, so bering but disturbed by drilling.		0.7	SP				
20				17.5-22' G gravel with	ray to light olive gray fine to coarse sand and a little silt and cobbles. Wet, massive.		0.5	GW/C	GM			
	OC-SB-414-20/22-XXX		910		nt gray cobbles and gravel in rock flour bedrock). Estimate top of rock to be 22' bgs.		0.6		YES			
				Bottom of b	poring = 23 feet bgs.		0.3		1111	111		
25												
Note	Jeny 7. Rawhffe											
					e gradual. Water level readings have been made at times nan those present at the time measurements were made.	Page :	2 of 2		3-414			

_								
	MANACT			Project: Olin Chemical Superfund Site	-0.0			
	MACT	EC		Location: Wilmington, W.A.	Boring: 50	3-41	5	
	A STATE OF THE PARTY OF THE PAR			Louis Assets	File No.:	•		
				Chent: Oliv	1			
Con	tractor: Boarthough		Drilling	Mathada Parta & Sair	D.C.W.			
Con	rator: Oale Dusche	eur	Drilling I		Definitions: S = Split Spoon Sample			
_		111.		1	U = Thin Walt Tube Sumple	:		
	ged By: Jerry Rawa			: Dave Cobas way	R = Rock Core Sample V = Insitu Vane Shear Test	•		
	cked By: C. Marreli			Wt/Fall: No	q = Unconfined Compressive woh = weight of 140 lb. han		sf)	
_	Start/Finish: 8/20/0				wor = weight of rods			
	ng Location: Area 5		I vvater Le	evel3: 10.5 menued in bordule, 8 Bused on sails	we = Water Content, percent oc = Organic Content, percent			
Tton.								
	Sample Informat	ion				1		
						Unified Classification		Ī
		حے				cat	g 5	Ē
ج		8		Sample Description and Classification		g i≟	ž ž	l∯
Depth	0 1 11	Recovery	Time			Unified	Analytical Collected (Y/N)	Elevation
_	Sample No.					55	₹ ७ ≿	Ш
	Rint 0-5	2.6	0840	0-0.6 Asphiltones concrete stab.	PID=0.8		Yes	
	OC-513-415-0/1N)	CKK	0845	0.6-5.0 Brown to dark brown			15)	
			_	fine to medium Surd. Moist, no d	1 6	SP		
				finite meaning sand, moist, no d	B = 0.4			
				structure, withour grainstrey pourus	ul = 0.7			į
				odors detected.				
					40	1 4		
				1	= 0.9	1		
5				1				
	Run#2 5-10	5.2	0845	Corp. A til. Cont.	1			
	UC-50-415-5/9 XXX		0850	5-6,5 Brown to durk 4 ming fine to a with somewood frymeds (Fill). Moist tovery worst, massive wontone grain	recline and	SP	vi l	
	OC SU US JELANS		10000	with somewood trappeds (Fill). Moist	P10=33		Yes	
				tovery wast, massive uniform some	5120-		ļ	
			1	0				
-			-		=1.2			
			-	6,5-9,5 Brown Live rounding sent with	torres sof			
				- COULT BOARD AND INCOME AND INCOME.	20.3	SP	- 1	
				green size, very moist tower museur	0	1 1	- 1	
100		- 06	<del>(</del> 2)	green 5 522, very moist tower, massive 9.5-10 Brounds chiebrary his towedown so hit corrected and greet and traces of the	col with 0 )	c. 1		
10	0 45	3.96	2	little course said and gravel and traces of site.	70.2	Soy		
	RUN#310-15	573	0855	10-11-5 Bruss Su dishamus Luckers	CALL OPIDELUNG	SOU		
				Some coursesuch and and in the Little E	tile mach	5046	1	
				to wet massie, indernico grain sise	Very moisi			
				115-101 B 1 1 15-2 1 1 1 0 000 of ludy	-0.2			
				11.5-19' Brown to due to due gray or duch	July July			
				Fire in cocese sand and growd with some and a little site. Very wist, generally was layers Aco, 5 thick of vaing colors moved abor No invested colors or stainly of served.	e cololles			
				and a little silt. Very was to come the was	in Gutu of	SM		
				losso Bro = 'Alido La	-0.7	164	1	
100				Theyers we dis vined of vary course were don	uei			
15				INO INSULA COOKS OF STRIVING OUServed.	PID = 1,2			
Note	es				117			
1400	<u> </u>							
1								
Stand	ification lines represent annoving	oundaries hat	yeen seil hin	transitions may be gradual. Water level readings have been made at times	D	,		
and	inder conditions stated. Fluctuations	o groundwater	may occur due	transitions may be gradual. Water level readings have been made at times at oother factors than those present at the time measurements were made.	Page / GoC	2		
1	DAME IL	00						
	my 1 my	M			Boring: SB-	-4/	>	
U	() 11/				3 - 3	1,-		
	V							

_								
	100			Project: Olin Chemical Superfund Site				
1	MACT	'EC		Location: Wilmington, MA.	Boring: $5B$	- 4	115	
1					bonning. Dig	/	1)	
1	-			Client: Olin	File No.:			
Con	ractor: Boarthona	upor	Drilling N	Method: Rato Somic	Definitions:			
Ope	rator: Date Dusch	4	Bore Hol		S = Split Spoon Sample			
	jed By: Tem Ray	1.Fle	Auger ID	/OD: NA	U ≈ Thin Wall Tube Sample R = Rock Core Sample			
	ked By: C. Marzeli	1		Dave Chapman	V = Insitu Vane Shear Test			
	Start/Finish: 8 20 09		Hammer	Wt / Fall: 45 A	q <sub>p</sub> = Unconfined Compressiv woh = weight of 140 lb. ham		(psl)	
$\overline{}$	ng Location: Area 5		Water Le	3 12	wor = weight of rods			
	Elevation':		Trater Le	vel: 1015 minuel in bring & base on soits.	we = Water Content, percent oe = Organic Content, percent			
-								
1	Sample Informat	ion						
1						5		
1		ح ا				aţi	= -	_
ے ا		ĕ		Sample Description and Classification		اء ۋ	te ti	. <u></u>
ᅵᇶ		8	9			i fie	ا ج اق الح	vat
Depth	Sample No.	Recovery	Time	(m)		Unified Classification	Analytical Collected (Y/N)	Elevation
	Rus 14 15-19	4.2	0805		1.00	-	100	
1	TANK NO 13	-	0 10	12-182 min to any non the tocoche	Soul 110 = 0.5	en/		
				and grand is 14 some silt und collibs. Well	Massul,	SM/G	M	
			-	some apperent iron staining around a	shille -11	"		
				16.5-18 Darholie boow in frozoco ance san	Juni - 1.1	1		
				could wish some set out trong wills.				
	OC-51-415-16/18-00	×	0910	67 15-16.5 Him to due brown fine tococree and gravel with some silt and colless. Wet some apprecent was string around a los-16 Darholic brown free vocause some around with some of and trove wills.	1 . 20.6		V	
1				13-18,5 Ulice bown similar to above low slight	MANUST		Yes	
1			<del>                                     </del>	and less sit.	P10=2.2			
_			<del>                                     </del>	2 1 110 1 1 1 1 1 1 2 2 2 1	110-01-	-		
1.				Bacountent possible hadrale as 18:5'				
20				Drilled Haw rock 18:5-19'				
				Botom of boring = 19'BCS.				
1				100 How of 100 my - 11156 3.				
1							1 1	
1			<del>                                     </del>			1	1 1	
1			<del></del>					
1								
1								
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	· · · · · · · · · · · · · · · · · · ·		<b>+</b>					
<u> </u>			<del>                                     </del>					
1			<del>                                     </del>					
1								
$\vdash$			1					
	<del> </del>		1					
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Note	es							
1.100	23							
1								- 1
1								- 1
1								
1								- 1
1								- 1
1								- 1
1								- 1
1								- 1
-								
Strat	fication lines represent approximate I	oundaries bet	ween soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of 2 Boring: 5B	2		
1	A Piucialidis	// iounuwate	, may occur due	outer suctors utait trose present at the time measurements were made.	V 41 6			
17	en curl	M			Parine: CA-	-4	18	
	1 1				Doring: 315	7	10	- 1



Project: Olin Chemical Superfund Site

Location: Wilmington, MA

Olin Client:

Boring: File No.: **SB-415** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Dale Duscher Bore Hole ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing Logged By: Jerry Rawcliffe Auger ID/OD: NA

Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 8/20/2009 Hammer Wt./ Fall: NA

Water Level: 10.5' measured in borehole, 8' based on soils **Boring Location: Area 5** 

Ref. Elevation:

**Definitions:** 

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of 140 lb. name wor = weight of rods wc = Water Content, percent oc = Organic Content, percent

	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	2.6	840	0-0.6' Asphalt over concrete slab				
	OC-SB-415-0/1.0-XXX		845	0-0.0 Aspirate over concrete stab	0.8		YES	
				0.6-5' Brown to dark brown fine to medium sand. Moist, no obvious structure, uniform grain size. No unusual odors detected.	0.4	SP		
					0.9			
5								
	Run #2 5 - 10	5.2	845	5-6.5' Brown to dark brown fine to medium sand with some				
	OC-SB-415-5/7-XXX		850	5-6.5' Brown to dark brown fine to medium sand with some wood fragments (Fill). Moist to very moist, massive, uniform grain size.  6.5-9.5' Brown fine to medium sand with traces of gravel near bottom of interval. Uniform grain size, very moist to	1.2	SP	YES	
					1.2			
				wet, massive.	0.3	SP		
				9.5-10' Brown to olive brown fine to medium sand with a	0.5	51		
				little coarse sand and gravel and traces of silt.	0.2	SM		
10				The course said and graver and traces of since	0.2	~		
	Run #3 10 - 15	3.9	855	10-11.5' Brown to olive brown fine to medium sand with				
				some coarse sand and gravel and a little silt. Very moist to	10.3			
				wet, massive, wide range of grain size.		SM/G	iΜ	
				11.5-15' Brown to olive to olive gray to dark olive gray fine to coarse sand and gravel with some cobbles and a little silt.	0.2			
				Very moist, generally massive but with layers 0.5 ' thick of varying colors as noted above.  No unusual odors or staining observed.	0.2	SM/G	2M	
					1.2	SIVI/U	11/1	
15				110 diagual odolo of staining observed.	1.2			1
Note	<u> </u>	1	1		L			

<u>Notes</u>

Jeny 72. Rawhffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**Boring:** 

	MACT	EC		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin	Boring: File No.:		SI	3-415			
Oper Logg Chec Date Borir	ractor: Boart Longyear ator: Dale Duscher ed By: Jerry Rawcliffe ked By: CTM Start/Finish: 8/20/2009 ng Location: Area 5 Elevation:		Bore Hol Auger ID Sampler: Hammer	/OD: NA Dave Chapm Wt./ Fall: NA	" OD inner casing/ 6" OD outer casing	Definitions: S = Split Spoon Sa U = Thin Wall Tub R = Rock Core Sar V = Insitu Vane Sl q <sub>p</sub> = Unconfined C woh = weight of I c we = Water Conter oc = Organic Conte	se Sample inple hear Test compressive 40 lb. hamr ds it, percent	ner				
Depth	Sample Informati Sample No.	Recovery	Time		Sample Description and Classification	1	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation		
15	Run #4 15 - 19  OC-SB-415-16/18-XXX	4.2	905	with some s staining aro 16.5-18' D with some s	live to olive brown fine to coarse sand and gradit and cobbles. Wet, massive, some apparent and a cobble.  Bark olive brown fine to coarse sand and grave silt and trace cobbles. Moist, massive.	iron el	0.8 1.1 0.6	SM/C				
20				Drilled thro	d possible bedrock at 18.5' bgs. ugh rock 18.5 - 19' bgs. poring = 193 feet bgs.		2.2		ПП	ПП		
25												
Note	<u>ss</u>					Jeny-	<u> </u>  }.	Ro	whff			
					e gradual. Water level readings have been made at times nan those present at the time measurements were made.	Page Boring:	2 of 2		B-415			

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington MA  Client: ULIN	Boring: 58 File No.:	1-410	0	
Con	itractor: Bourt Lough	2015	Drilling f	Method: Rotusouiz	Definitions:			-
Ope	rator: Dale Discher	lev s		le ID/OD: Innercusing 47/8/Outer casing 00 60	S = Split Spoon Sample U = Thin Wall Tube Sample			
	ged By: J. Rawchill		Auger ID	DIOD: NA	R = Rock Core Sample			
	cked By: C. Maralia	~	Sampler	Dave Chapman	V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressive	Coath (as	•	
	e Start/Finish: 8 18 09		Hammer	· Wt./ Fall: No	ve Strength (ps umer	J)		
	Α			evel <sup>3</sup> : \$7.5'B65				
	ing Location: Aven 8		Avaier Fe	vei: ~ /15 1567	t n			
Ne	T		<del></del>	ec = Organic Content, percen				
	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification classification Natical Analytical			Elevation
	Ruu#10-5	416	1030	0-0.4 Courete hight gruy brown pelven	and courself			
	06-411-0:0-1.0-*		1035	0.4-1.4 Brown fine to under sent with some conversed undquel. They to notice to by to brown fine some into some medius sent and tones of course sent and grant in approximate the structure. Friely uniform grainsize.	No = 10	SP/SP	,	
5					V= 52			
,	Run#2 5.10	5,3'	1040	5-6.2 Brown five to westin said. Sim, to 1.4-5.0.  6.2-1000 Olive to olive gray five to Ca	lur PIJ=63pp	1	,	
				52-10:00 Olive to olive gray fine to co sand and grand in the sound to a little co and site. Massive moist to very moist. Water hand borehole Br	oldes -91pp	in /		
-	OC-416-80-9,0-XM		1045	Slight Brewling pa	,,	poer		
10					0/	ym		
	Ru#3 10-14.5	4.5	1050	10-14,5 Olive guy to clurk ve to coose suntant site w some and coldeles. Moist, ma though and appear to have more Fairt sweet organic octor.	pp	GM		
15	13-14' 06-416-138-146-141		1105	Encounted possible hedroch BC reconnect rock fragments som in SB. 405.  Bottom of boring = 14.	81 pm			
	stification lines represent approximate t	of groundwater	ween soll types	Bollow of boruy = 14:  s, transitions may be gradual. Water level readings have been made at times are to other factors than those present at the time measurements were made.	Page Low	1		

	do a n			Project: Olin Chemical Superfund Site				1
	MACT	TEC		1 . 1 . 2				
	MINICI	LEC		Location: Wilmington, MJ.	Boring: ${\cal S}$	iZ_	417	,
				101:4:	Doming.	D	711/	
				Client: Oliv	File No.:			
Car	tractor: Board hom	5	- m					
One	rator: Gree trullic	g yerru	Drilling	Method: Roto Sanic	Definitions:			
	ged By. Jeny Raw		C/15 D	le ID/OD: 6400	S = Split Spoon Sample U = Thin Wall Tube Sample	la.		
Cho	cked By:	chite	Auger	1/00: 4/800 inner carrier / 1/200) sides acres	R = Rook Core Sample			
		**	Cumple	· UMW LANGUAGUA	V = Insitu Vane Shear Tes	it Steenath	(-a0)	
	Start/Finish: 9 10	29	Hamme	WGPFall /VPT	woh = weight of 140 lb, ha	unusa unusa	(psi)	
Dot	ing Location: Area S	5	Water L	evel3: = 9-10' BGB based on so; I observations	wor = weight of rods we = Water Content, perce	ni.		
1761.	T T				oc = Organic Content, perc	en'		
	Sample Informa	tion						
						-		
		<b>&gt;</b>				Unified Classification		
ے ا		je je		Sample Description and Classification		CS	ad a	ے
Depth		Recovery	9	The state of the s		ed	y ti	iĝ
ے	Sample No.	Se Se	Time			nif	Analytical Collected (Y/N)	Elevation
1	Kun#10-5	2.7	1035	0-0.50 6. 1 1			4 U S	Ш
1 2	06-513-417-0/10	-	1040	0-0.5 Brown fine to meden such with	PID= 0.1	500	.,	
i			110 10	some course sand and granel Dry some	gross and		Yes	
			+	some course sand only much Dry, some is of fibers. (Sandy tops oil loam)				1
		-	+	10.5-5 hight brown to brown theto me	edan 20.1	SW/		
-		-	<del></del>		uel	KP		
		ļ	<del> </del>	truces of silr. Dydomoist.			1	
1					=0.2			
			<u> </u>		-0.2			i
المستر							1	
5					<i>2</i> 0.3			
	Runta 5-10	4.3	1040	C-101 1. la		-		
				high on media	PV 2.3			
				5-10 higher low a median little fine scul and troses		60		
			<del> </del>	Moist some slight stratifs	217	50		- 1
			<del> </del>	generally very our force. No				
-			-	January ( Pour Court of the Cou				
			<del> </del>					
1	06-50-417-8/10		l				1	
	0 - 11 - 417 - 8/10	-2/2	1050			SP	1	
DI	<del></del>		-			1 1	465	- 1
,,,	A 42	1					169	. 1
. 4	Runt3 10-15	3.7	1110	10-11 Brown to light brown medium soul P with some course soul and true soul who 11-125 hightbrown to brown Rice soul with a lit	1			
				with some course could and true could be		50		
				11-125 highethrough to brown Bile carel with - 11	LD,			
				silr and trees of medianto cocresand along	1	Solar		. 1
		,		0 1 1 1 6	myes.	1744		
				Correction like a Library Course Sum at 211.1				
				Correspond light modelles brown layer at 11.5' Reddich brown stranged legerat x 12'865		cal		
				12 5 12 P		1/5/1	1	
1				12 -13 Oroun medient ocucrese sandwith	a =0.5			- 1
15				12.5-13 Brown mediant-occurse sandwith				
Note	s			13-1315 Ulive cruy medin to coarse said	<u> </u>	Su		-
	<del>-</del> ,			and gravel with a trace of sprand catalog	c			
				13.5-15 Bigging marley to a	a 1			
				with a life Comment of the Sanda	gravel			- 1
				13.5-15 Brown median to coorse soula with a little fine souland collec.		•		- 1
								- 1
	4.7	1	Pt					
Stratif	ication lines represent approximate/b	pundaries between	een soil types,	ransitions may be gradual. Water level readings have been made at times	,	A		
	Talled. Pluctuations	groundwater (	may occur due	ransitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	age / of	2		
X	eng venegy /	/						. [
U	() # 6/			В	oring: $5\mathcal{B}$	-4	17	
	~						. /	

-17	Maria			Project: Olin Chemical Superfund Site				
	MACTI			44.0				
	WINCII			Location: Wilmington, Mit.	Boring: 5	ろ~し	117	
1				louant.			1, (	
				Chent: Olin	File No.:			
Con	tractor: Boart Long	.0.00	Deilling	Market O - C				
Ope	rator: Greathall P	yevan	Por No	Method: Runsanic le ID/OD: 600	Definitions:			
	ged By. Tem Rawcl	7/2	CHSI NO	le ID/OD: 6º00	S = Split Spoon Sample U = Thin Wall Tube Sample			
		IHE	Auger IL	190 9 1800) in her conclude / (a NO) of Non occupa	R = Rock Core Sample			
			Joannhiel	wave thereman	V = Insitu Vano Shear Test q, = Unconfined Compressi		(minf)	
			Hammer	vv./ Fall: // /F	woh = weight of 140 lb. har	nner	than)	
	ng Location: Preu 8		Water Le		wer = weight of rods we = Water Content, percen			
					oc = Organic Content, perce	in'		
	Sample Informatio	n	_					
1						T =		
100		>			,	Unified Classification		
غ		Recovery		Sample Description and Classification		S	P P	Ē
Depth		9	<u> </u>	The second and state of the second and state of the second and sec		ed sign	i t t	Ęį
	Sample No.	æ	Time			nifi	Analytical Collected (Y/N)	Elevation
15	Runt 4 15-20	3.8	1135	15.16.0		⊃.∪.	\$ 0 E	<u>ui</u>
٠.			1	15-18 Brown medien to coarse sul	P10=0.5	SP		
i			-	with somethingry colored layer, wet.				
			<del> </del>	, , , , , , , , , , , , , , , , , , , ,	2 1.8			
				0.1.6				
				18-20 Dark shive my to very deshine	= 0,4			
				fine tomedin sund and mark with son site and a little coase sent and college.				
				SIN and a little coore send and I have	23,4	Guy		
				Black whored layer at 24,5'BGS.	-011	low		
				0 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			'	
30				Possible slight sever-like odor.	20.6			
. :	Nun#5 20-225	2.9	1200	30:21 O 6 O . A 24	- 0.0			
		<b>V</b>	100-	30-21 Oorkgrey fine to coase sail with Some sile, appulant three of cobbles. W	P1020.3			
	UC-5B-417-20/2	-114	0.15	some site, and three of cubbles. W	red.			
	00 3.3 117 8018	110	1005					
				21-22.5 Dayle gray to gray Rueto course such	l,	6W	Yes	
				like poliverical rock.	ohs	0.00		
				like pulverical rock.	20:3			
				•	0.5	1 1		
				Estimate top of hedrodi = 21 BGS				
				A 6:1				
25				Bottom of bony = 22,5'B65				
-								
			·					
							1	
Note	S				17-17-1-1			
	A							
					4			
			*					l
Stratifi	cation lines represent annual . A							
and un	der conditions stated. Fluctuations of gr	oundwater m	en soil types, t way occur due t	ransitions may be gradual. Water level readings have been made at times o other factors than those present at the time measurements were made.	age 1 of			
. \	Jerus 10/11. VI)	0		view viosa present at the time measurements were made,	age 2 of	7		
_(	12 mg	X					7	
0	0 1/6	/		В	oring:5B-	71	/	

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Client: Olin  File No.:	3-4	118	
	tractor: Boart hunge			Method: Roto Sonic Definitions:			
Ope	rator: John Corulia	fr.		e ID/OD: 47/6" ON Thinst casty/6"00 outerors U=Thin Wall Tube Sample	е		
Logg	ged By: Jenn Rawa	( MM		/OD:   R = Reck Core Sample  V = Insitu Vane Shear Test			
	ked By: CTM			Dave Chep was question to a question to a character of the first that the confined Compression to the first that the confined Compression to the first that the confined confined confined to the first that the confined confined to the first that the confined confined to the confined to		(psf)	
	Start/Finish: 8727 00	1		THE TENN. 7000			
	ng Location: Arrea 5		[vvater Le	vel3: Manuel out 513 18691 in Cused boreland we = Water Content, percent			
IXEI.							
	Sample Informat	ion	Γ		ڃ		
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation
	RUNK 0-5	3.6	0815	0-0.2 Aeplato P1020.2	Sω		
	00-50-418-0/1.0-	XXX.	0835	(Sub-grade Pell) Moist, was sai.	300	)651   	
5				1.2-5 hight brown to grayish brown to boswer 20.1  frieto median sund with gravel, some cdoble course sund and a proceeds. 20  No vilors (Unu sind) detaded. 24.6	16		
	Runt 2 5-10	4.2	0875	Five meden and and			
		·		tropes de runge sur under sur la lattle	Suy	ω 	
				Palate The College of the College of	10.		
10	06-53-418-8/10-1	(ad	0835	No unusual och r	64	yes Yes	
10	Run#3 10-15	415	0835	10-11 Brown fins to course and with a little city letter and its	SW	ί 5ω ·	
				11-12.5 Uliveloroun fine to grevel with some silt. Vay	ion	You	
15				12.5-15 Brown to olive b sundand gravel with moist, mass he reddish trumed eyer at 29.5'. No varsual odo			
Note	es						
Strati and	ification lines represent approximate budger conditions stated. Fluctuations	ocundaries both	reen soil types. may occur due		FZ		
	Jenz / Coul	111		Boring: 50	3-1	118	

	MACT	EC		Client: Oliva File No.					
Cont	tractor: Boart hange	w	Drilling A	Method: Roto Son i C Definition: S=Spix Spoon					
Ope	rator: John Coralia	· Cr.		U= Thin Wall T	ube Sample				
Logg	ged By: Jenn Rawc	T I LANG	Auger ID		Shear Test	٠			
	cked By: am		Sampler		Compressive Stre 140 lb. hammer	ength (psf)	)		
	Start/Finish: 8 37 00	1	Hammer	WEJ Fall: NOO	rods				
	ng Location: Areu 5		avater Le	vel3: Meuseul at 5.3 965 in cased bureholl we - Water Con					
IXEI.	<del>,</del>						-		
	Sample Informat	ion				E			
Depth	Sample No. 2 E			Sample Description and Classification		Classification	Analytical Collected (Y/N)	Elevation	
15	Run #415-18	2.1	0850	15-17 Brown to dive brown to dark olive gray	1	7.	Ma		
				Line to course sand and grand with traces		64)	GM		
	UC-SB-418-15/17-	XXX	0800	15-17 Brown to dive brown to durholwegry Line to course sound and grand with traces sold and could be some the sold and counted had made and expenses the bedselver	2	T'			
1				tucounter hundmertered - e tup bedoch	4	l			
		$\angle X \angle$	$1\lambda\Delta$	at 17' BGS	4.2	_			
		' /	///	Bottom of login = 18'BGS	20.3		7.19		
				300000					
1									
1								i	
20					-	-			
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Note	<u>es</u>								
1							1	1	
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Strati	fication lines represent approximate t	oundaries lietw	een soil types.	transitions may be gradual. Water level readings have been made at times	2 00	2			
and u	urder conditions stated. Fluctuations	of groffitheter	may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.  Boring:	DL OF	0			
	Jeny Cum	XY/II		Paringe	60.	- UIC	2		
	0 ()			Boring:	319	TUC.	>		
	0	00							

	Ada			roject: Olin Chemical Superfund Site						
	MACT	EC		Location: Wilmington, MA.	Boring: $SB$	-4	19			
				Ollows and he did	File No.:	•	• 1			
				Client: Oliv	1 110 110			- 1		
Comé		2	Drilling 8	Method: Rotosonic	Definitions:			4		
_	ractor: Boart hongy	20-	Bore Hol	e ID/OD:   nast 47/800   Outer 6000	S = Split Spoon Sample					
_	ator: Dala Dusdier	1110		,	U = Thin Wall Tube Sample R = Rock Core Sample			- 1		
	jed By: Jerry Rawa	7417		10D: NA-	V = Insitu Vane Shear Test					
	Start/Finish: 8/19/09			Ouve Chromuni q <sub>e</sub> = Unconfined Compressive Strength (psf)  t./ Fall:   Weh □ weight of 140 lb. hammer						
	0////			13: 8:5 mersuned in borehole, we = Water Content, percent						
	ng Location: Area S Elevation¹:		water Le	ver: 8.5 mersmen in overlive.	we = Water Content, percent ee = Organic Content, percen			- 1		
Nei.										
	Sample Informati	on								
						Unified Classification		- 1		
		حِ		Sample Description and Classification		2	cal	5		
ے ا		×6		Sample Description and Classification		ied	yti ect	aţi		
Depth	0	Recovery	Time			Unified Classif	Analytical Collected (Y/N)	Elevation		
Ω.	Sample No.		1.000	0-0,2 Aspholo 0.2-016 Concreck 0.6-5.0 Brown to light brown fine to a sand. Moist, no apparent structure, so and concrete fragments new top at sumple. No invisal octors.	0.0	<u> </u>	400			
	Run#1 0-5	3.4	1550	10-012 ASPINACIT	PID= 0.4 ppin	,	V.			
	UC-SB-426-0/10	XX	1555	0.1-016 CON ORDE	, =1,3 ppm		148	- 1		
				0.6-5:0 Brown to light brown time to	reduns					
				sand. Moist no apparent structure, so	mo aruvel=3.2	5P				
				and concrete for compute incur tran	- 0					
				of sunder Marine Doctors	-1.50					
				or serife to ono serio corone	- 2. 4/4	~/				
	OC-5B-426-3/5x	ХX	1605		i		V I			
5					=3.74	700				
_	Run 42 5-10	4.4	1610	5-6 Brown to dork brown Fine to medica	1 PIO=4.3-	c 0				
	ICUVI 182 3 1V	11.7	1010	M. St C	1 6107 713	SP	1			
			-	Sand Misist massine, univoran grain	1 5/Ze.			- 1		
				Sand Moist massine, unitorn years 6-7 Brown to light brown his tomeding 5. with a truck of great and course sun very moist mas a slight mother app	egel = 4.7.	Sρ				
			ļ	with a truce of gravel our course saw	V. Moist do	JP				
			-	way moist has a slight notted app	Degavel.			_		
				Uniform gran size Blice brown fine +	= 38					
				7-8.8 Brown to light of the	= 0.3.	00				
				menium sourd, Wet, NO UNISULA OUT		′′				
				18:8-10 Olim promudo helloniza ovand	me ,					
10				to course sand and similarth a little sit	= 2.3p	ш				
	Run #3 10-15	5.1	1620	Very moist areasur.	PID= 1,200	_				
				10-12 Brown Line to course sand with s	mo	יי	.	- 1		
				gravel and traces of sit, More grav	100	GW/	- 1			
				with dich.	el = 0,7	/9	1			
			<del> </del>	12-14 Rayunto alive largun Franciscoase	sul					
_				with depth. 12-14 Brown to olive brown Fine to coase and silt with gravel. Morse, massing.	= 0.1					
			<del> </del>	14-15 Brown fineto coarse sand and go with a little site. Massie, moist, ao						
			<del> </del>	14-15 Brown Fireto coores con landa	mal -0.2	A	ł I			
				it class in	1 × 1	GW	m			
,,			<del> </del>	my na little silo. Vilassue, moist, ao	UNUSUL	/ 5	'			
15			L	[D(001).	= 0:1					
Note										
AS	-P3									
Strat	fication lines represent approximate b	oundaries betw	veen soil types	transitions may be gradual. Water level readings have been made at times	Page / o €	7				
and	auer conditions states. Fluctuations	Japandwater	may occur du	e to other factors than those present at the time measurements were made.			_			
	ters / Culy	1///			Boring: $SB^{-}$	.41	9			

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilminstein, MA Client: Olin	Boring: $5B - 4/9$ File No.:					
Cont	ractor: Booth hous	yeur	Drilling N	Method: Rutosonic	Definitions:					
	ator: Onle Duscher	0		e ID/OD: 47/8 inner casmOD/ 62 out 5 cusin UD	S = Split Spoon Sample U = Thin Wall Tube Sample					
Logo	jed By: Terry Rawa	idle		IOD: NA	R = Rock Core Sample  V = Insitu Vane Shear Test  q, = Unconfined CompressiveStrength (psf)					
Chec	ked By: C. Marrais		Sampler:							
Date	Start/Finish: 8/19/09			Wt./ Fall: /VA-	weh = weight of 140 lb. ham		\$-1,			
	ng Location: Aven 5	,		vel3: 8:5' measured in borehule	wer = weight of rods we = Water Content, percent	ent				
Ref.	Elevation¹:				oe = Organic Content, percer					
	Sample Informa	tion	·····							
	Sample informa	1011				=				
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
15	Run#1415-21	4.3	1630	15-16.8 Olive to olive gray Fine to coase and gravel with some cobbles and si	sund PIN- 1.2	<u>ا</u> ا				
				and growed . if same entitles on la	6 Water	GW/	(m)			
				or the allow some engineers and st	o. wes, paassa	]-				
				16.8-19 higher vellowish brown Friedoco	ase -nz					
				16.8-19 higher yellowish bown Fretoco	Silt					
				lie a maranisa U			1			
	OC-SB-414-17/19-)	111	1640	11 G15 h Should will brown finotoco	1700		١,,			
				16.0 1 Mayor yellowish of the sale	20.2		Yes 1			
				Sound and some growel with a 11 of 5112-6	ud Childres.	CW				
20			<del>                                     </del>	16.8-19 hight yellowish brown fine to co sand and sitt grown with a little silve vay an oist-to net	=o.1					
-				19-21 Gry to light gray colobles, grave, appears to be pulverized rock (ruch Estimate top of roch to be 20-205). Bottom of boning =21.0'365.	landul &					
_				The Gray to the gray courts, grade	Caracas					
	·		<del>                                     </del>	appears to be pulverized rock (with	Hour,					
		<del>                                     </del>	<del>                                     </del>	Estimate top of rach duho do-tost	865					
				Rothman of hand - 21 of 16						
⊢		<del> </del>		000000 00000 -01,0 B63.		_		_		
		-	-	Ŭ.						
		-	<del>                                     </del>							
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l		1								
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	1					ļ				
Note	es									
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1										
				, transitions may be gradual. Water level readings have been made at times	Page Page	200	()			
angh	inder conditions stated. Fluctuations	s ovgraundwate	r may occur du	e to other factors than those present at the time measurements were made.	Page Page Boring: 5B	U 01				
$  \rangle$	fery Cente	17 N			Boring: SA	-41	19			
		<del>                                     </del>			1-09. 3/3					
		V								

	élelei			Project: Olin Chemical Superfund Site				
	MACT	EC		Location: Wilnington, MA	Boring: ≤β	-42	$\circ$	
l				Client:	File No.:	10		
l				6107090016 - 09				
Cont	iractor: Boarthough	1000	Drilling I		Definitions:			
Ope	rator: Dale Dugher	7		e ID/OD: Invercasing 47/8 OvorCusa 62 (OD)	S = Split Spoon Sample			
	ged By: Jeny Rauch		Auger ID	IOD: NA	U = Thin Wall Tube Sample R = Rock Core Sample			
Che	cked By: C. Marsolin			Dave Chapman	V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressive	aStemanth (mr		
	Start/Finish: 8 18 00			Wt/Fall: NA	,			
_	ng Location: Aven 8		Water Le					
	Elevation¹:			Vet : 7.9 1865 wc = Water Content, percent ee = Organic Content, percent				
	Sample Informat	ion						
l						5		
						Unified	= -	ا ہ
		e e		Sample Description and Classification		اغ وا	5	i
Depth		Recovery	9			Unified	g ≅ g	Elevation
å	Sample No.	A B	Time			ភូឌូ .	Analytical Collected (Y/N)	ů.
				Coverete dab 0-0.7'BGS	10=60 3 +			
ı	Run#107-5,0	3.9	1550	5.7-1.8 hight larounds gray 4	10=60 3 top	1.0		
	OC-SB-420 U-1N+	60	1555	silt jooks like orlver tres coulde	refer )			- 1
				1.8-3, 2 Bown fine to medium soud, uni	1 - 40			
l				100-3, & SOWA 1700 O MEAN WAS EVER, UNI	som gruin	SP		
				3.2 -5.0 Brown trong his to goose so coul growel with some small could be	odois.			
ı			1	3,2-5,0 Brown to gong time to goodese &	urd =28		1	
1			1	and sowel with some small whiles to	otom of	SW/	. 1	
l			1	recovery appears to be privarized concre	te.	16h	)	- 1
5				recovery appears to be proverized concre Moist to dry.	=32	'		
ŕ	Ruth 2 5-10	4.9	1605	5-58 Dahbrumto derholine brown	200			
i .	1000.0 3 10		1	fine occarse surl with someguml.	10 = 180		- 1	
ı			<del> </del>	50 3 Alice de Mala ser a Come do como	2. 0 . 00/5		- 1	
ı				5.8-7. Olive to Much rown fine to coase with some grandom crobbles vegetist,	Stork Cooksill	SW/GW		
ı	a 50-1122 1 5 65	v/ dod	1610	SULON SOME GRANTER CONTROLS DESIGNOSO, 1	102 2703	1641		
-	oc-sg-470-6.5-8,5	- XXX	11010	sweet or mic color.		1 Torba	-	_
1			+	7.0-8 Similar to above but less whe sine ( 8-8-16 Cong tooline gray fine to cooke said graveland trees of college.	Tecs (Times), M	0150-	1	
1			<del> </del>	8-8.6 Con tooling gry Fine to cooke guil	cust city	1 1	- 1	
1				great trees of college.	core sul	CM	1	
115			<del> </del>	9.6-19 Dark gray to dark Nicegory Riveto	PID = 210	1 1		
10	0 42	74	9. 4	and site. Very MOTSE.		-	_	
1	Rutt3 14-14	7.1	1615	10-14 Darkolite grundo very dulegry fo	he to 6.	1 1		-
1			-	wedin suntant sift matrix with cocose queller some coubles, very moist t	such o.	GM	1	
				grandam som coubles, Very moist t	o wet	۱۳۳	- 1	
				massile, (Til-(1)e appearue).		1 1	- 1	
		ļ	1		- //			
1	06-58-420-12-14-2	44	1625	Encouvered something hard at 13' dville through probably bedoodle	المام المام	]	4	
				10 0 1 1 D hadran	-5 -5 (4 156)	<b>1</b>		
1			-	through providy seconda				
1				10 11 1 10 10 10 10 10				
15	L	-		Bottom of boning = 14,0 BGS				
Note	es A AA .	Α .	11	9	• •			
To	p sample collect	ev at d	tup I a	freesury below state 2007-107'BG	25			
1	,			,				
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Strik	ification lines represent approximate	boundaries bet	ween soil types	, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page of			
7"	DA As CIL	Jundwate	may occur du	e so outer ractors than those present at the time measurements were made.	' '			1
1 2	Jenny 1- mor	/ //			Boring: 53.	421		
_	4	/				10		
	/ (	/						

MACTEC		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin 6107090016-09	Boring: File No.:	SB-420
Operator: Dale Duscher Bo		Method: Roto le ID/OD: 4 7/ D/OD: NA		Definitions:  S = Split Spoon Sample U = Thin Wall Tube San R = Rock Core Sample	•
Checked By: CTM Date Start/Finish: 8/18/2009	Sampler	: Dave Chapi Wt./ Fall: NA		V = Insitu Vane Shear T q <sub>p</sub> = Unconfined Compre woh = weight of 140 lb. wor = weight of rods	essive Strength (psf) hammer
Boring Location: Area 8 Ref. Elevation:	Water Le	evel: ~7.4' bg	S	wc = Water Content, per oc = Organic Content, per	
Sample Information	-				
>					n) cation al

	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-420-0/1.0-XXX	4	1550 1555	<ul> <li>0-0.7' Concrete slab.</li> <li>0.7-1.8' Light brown to gray fine sand and silt. Looks like pulverized concrete (piece of rebar).</li> <li>1.8-3.2' Brown fine to medium sand. Uniform grain size, moist, no apparent structure or odors.</li> </ul>	60 40 28	SP	YES	
5	D #2.5 10	10	1605	3.2-5' Brown to gray fine to coarse sand and gravel with some small cobbles. Bottom of recovery appears to be pulverized concrete. Moist to dry.	32	SW/G	w	
	Run #2 5 - 10  OC-SB-420-6.5/8.5-XXX	4.9	1605	<ul><li>5-5.8' Dark brown to dark olive brown fine to coarse sand with some gravel.</li><li>5.8-7' Olive to olive brown fine to coarse sand and silt with some gravel and cobbles. Very moist, sweet organic odor.</li></ul>	180 2700	SM/G	M       YES	
10				<ul><li>7-8' Similar to above but less cohesive (less fines). Moist.</li><li>8-10' Dark gray to dark olive gray fine to coarse sand and silt. Very moist.</li></ul>	2700 2100			
	Run #3 10 - 14 OC-SB-420-12/14-XXX	3.9	1615	10-14' Dark olive gray to very dark fine to medium sand and silt matrix with coarse sand gravel and some cobbles. Very moist to wet, massive (Till-like appearance).  Encountered something hard at 13' bgs. Drilled to 14' bgs through probable bedrock.	6.1 0.3 2.2	GM	YES	
15				Bottom of boring 14' bgs.	0.4			ПТ

## Notes

Top sample collected at top 1 foot of recovery below slab approximately 0.7 to 1.7 feet bgs.

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 1

**Boring:** 

	Alan		Project: Olin Chemical Superfund Site				
1	MACTEC		Location: Olin Wilmington MA.	Boring: ぢゟ-	4/2	./	
			Icliant.	File No.:	,,,	•	
			Olin 6107090016 - 09				
Cont	ractor: Brast home year	Drilling I		Definitions:			
	rator: Dale Duckler		e ID/OD: 1 sercusing 47/ville/Dutclas 1200	S = Split Spoon Sample			
	jed By: Jem Rauchfly		10D: MA	U = Thin Wall Tube Sample R = Rock Core Sample			
	sked By: C. Mazzalia	Sampler		V = Insitu Vane Shear Test q <sub>b</sub> = Unconfined Compressive	Strength (r	wh.	
	Start/Finish: 8/19/09		Wt./ Fall: AM	weh = weight of 140 lb. hami		A1,	
	ng Location: Area 8	Water Le	vel3: 10-10.5 (WL meter) B65	wer weight of rods we = Water Content, percent			
	Elevation¹:			ec = Organic Content, percen			
	Sample Information						
					uo		
	4				cati	<u> </u>	Ē
ا ج	Vei		Sample Description and Classification		ed iji	of the state of th	엹
Depth	Sample No.	Time			Unified Classification	Analytical Collected (Y/N)	Elevation
ے				0.0		20 E	W
	Rutt 0-5 46	0735	0-1 Brown to durk brown fine to course	? 910=10.6	Wew	4	
	OC-50-421-0-1.U-KK	0740	said and grand by romoist was the	A. b. rolled			
			lower Printer ours and wolf and Muich son	10 canda = 3.8			
			Luceus wide ruge of June Stee	A COMPA S. B	SW		
<u> </u>			sand and grand. Dry tomoist mass ne 1-1.5 Dry tomoist mass ne 1-1.5 Dry tomoist mass ne 1-1.5 Dry tomoist mass ne 15-1.5 Dry tomoist som to dark grayish brown to 15 may five to course and all grand. Moist som layers and 15-2. 7 Dryk brown five to magher sand 100 apprent structure, no on sudvaludors.	maist,	$\vdash$		
		<b></b>	no appreció structure, no un sucho dos.	= 4.0			
		ļ	2.7-5.0 Brown to light bown fine to wade sand moist, massue, unborn gran size. No distructionscal adors.	· = 7.4			
			and in set we call we been mu size. No	- 7.7	SP		
			distrut covery lodgers.		7"		
5				= 85			
	Run#25-10 4.4	0745		- 2 (			
			and I Color Front	= a.1			
			5-9 Brown to light boscur free to med sand moist, some strutchater (difficult to after vibration from rotusaric). Uniform gri	lui		1	
			Sand moist, some structured (dithautt	0502 -23	SP		
1			a Har Manstein than sorosanic). Unitorn gri	45100.	71		
1		6	9-10 Olive to olive gray firetococree sud grand with a little silt. Massive, wide ran grain sizo.	PIP =33			
ı	OC-5B-421-8.0-10-XXX	475	19-10 Olive to olive gray tiretococree such	and			
ı		7145	growed with a little silt. Massive, wide re	ge of	SW/	Y	
10			grain sizo.	AD =76	/0.		
	Run #3 10-13 2.9	0800	10-10.8 Brown grandwith some finetocoars	e 010=140			
ı			sant.	land			
ı			10.8-4.5 Oliveto while brown fretocorrses	0,010 = 170	2.1		
l	06-58-421-105-125-125	0805	C-125 Once ever fire tox is one sent out out	of greance	٠ <b>٠</b>		
			uis-125 Darleguy fixetoc varge soil and qui	PIN = 1050		Y	
			The second of the days of	1213			-
			Dilled to 13.0 BGS - large pieces of ro rochsimilar composituen to what appear bedroch refusal in other boreholes.	chin she			
1			rochsimilar composition to what aspec	stobe		7 1	
		1	bedrock refusation other boreholes.	-			
15							
Note	es		00-60-6-6-0-			-	
			P(1) = Bodognus in treatures cove				
ı			Sowe M				
1			and the state of				
1			PID = Badgmud in breathing zone Some DD Bottom of boing = 13.0 B6 5				
1			<b>S</b>				
			, transitions may be gradual. Water level readings have been made at times	Page / of	i		
and	unus conditions stated. Y luctuations of groundwar	er may occur du	e to other factors than those present at the time measurements were made.		,		
	Vann Key VIVI			Boring: 50-	421		
_	7 7			3. 20	10		_

	Alle FA COTT			Project: Olin Chemical Superfund Site					
	MACTE	$\mathbf{EC}$		Location: Wilmington, MA	<b>Boring:</b>		SB	<b>-421</b>	
				Client: Olin	File No.:				
				6107090016-09					
Con	ractor: Boart Longyear		Drilling N	lethod: RotoSonic	Definitions:				
<b>I</b>	rator: Dale Duscher			e ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing	S = Split Spoon Sar				
	ged By: Jerry Rawcliffe		Auger ID/		U = Thin Wall Tube R = Rock Core San	nple			
	cked By: CTM			Dave Chapman	V = Insitu Vane Sh $q_p = Unconfined Co$	ompressive		psf)	
	Start/Finish: 8/19/2009			Wt./ Fall: NA	woh = weight of 14 wor = weight of roo	ds	ner		
	ng Location: Area 8		Water Le	vel: 10 - 10.5' bgs (WL meter)	wc = Water Content oc = Organic Conte				
Ref.	Elevation:			,					
	Sample Informatio	n							
	P						٦		
		_				=	atic	<del>-</del> -	_
l _		/er)		Sample Description and Classification		l d	ان م	tica	io
Depth		Recovery	e E	-		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
De	Sample No.	Re	Time			PIE	<u>5 ಕ</u>	3 S	Εlε
	Run #1 0 - 5	4.6	735	0-1' Brown to dark brown fine to coarse sand and gravel. D	irv				
	OC-SB-421-0/1.0-XXX		740	to moist, massive.	1 y	10.6		YES	
				1-1.5' Dark brown to dark grayish brown to dark reddish			SW/G	W	
				brown fine to coarse sand and gravel. Moist, some crude		3.8			
				layering, wide range of grain size.			SW		
				1.5-2.7 'Dark brown fine to medium sand. Moist, no		4.0			
				apparent structure, no unusual odors.					
			<b>†</b>	2.7-5' Brown to light brown fine to medium sand . Moist	-	7.4			
				dry Moist, massive uniform grain size. No distinct unusua			SP		
5	5			dry Worst, massive uniform grain size. To distinct unusua	uı	8.5			
	Run #2 5 - 10	4.4	745			0.5			<del>                                     </del>
	Kull π2 J - 10	4.4	145	5-9' Brown to light brown fine to medium sand. Moist, so		2.1			
	+		<del>├──</del>	stratification (difficult to see after vibration from rotosonic	).	2.1	SP		
			$\vdash$	Uniform grain size.		22	эг		
						23			
						22	CTT / C		
	OC CD 421 0/10 VIVIV			9-10' Olive to olive gray fine to coarse sand and gravel w	ith	33	SW/G	i	
	OC-SB-421-9/10-XXX		745	a little silt. Massive, wide range of grain size.		<b>-</b> -		YES	
4.0						76			
10						1.10			<u> </u>
	Run #3 10 - 13	2.9	800	10-10.8' Brown gravel with some fine to coarse sand.		140			
				10.8-11.5' Olive to olive brown fine to coarse sand and gra	vel		~~~		
				with a little silt, cobbles. Very moist, mottled appearance. 11.5-12.5' Dark gray fine to coarse and gravel with a little s	ilt	270	GW		
	OC-SB-421-10.5/12.5-XXX		805	Slight sweet organic odor.				YES	
		ш		Encountered possible top of bedrock at 12.5' bgs.		1050			
				Drilled to 13' bgs - large pieces of rock in shoe, rock simila		ш			ш
				in composition to what appears to be bedrock refusal in oth	er				
				boreholes.					
				Bottom of boring $= 13'$ bgs.					
15									
Note	<u>es</u>								
				PID = Background in breathing zone.					
								. 1	
					Jeny 7	. ) ,	0	nAA	
					Jenn 7	K. 1	Cau	relle	/
					July 1	·		ru	
					·			,	
				s, transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page	1 of 1	l		

**SB-421** 

Boring:

	MACTEC			Boring: $\leq \mathcal{B}$	-47	72	
			Client: Oliv	File No.:			
Cont	ractor: Reach nonmen	Drilling N	Method: Rito Sonic	Definitions:			
	ator: Dale Duscher	Bore Hol	e IDIOD: 47/000 inves custo /6000 over Consin	S = Split Spoon Sample			
		A	100. 414	U = Thin Wall Tube Sample R = Rock Core Sample			
	ed By: Jerry Rawcliffe		/OD: NA-	V = Insitu Vane Shear Test			
	ked By: CT/h		Dave Chapman	- Unconfined Compressiv		psf)	
Date	Start/Finish: 8/25/09		Wt./ Fail: 1/A-	web = weight of 140 lb. ham wor = weight of rods	ruice.		
Borir	ng Location: Aren 6	Water Le	vel3: 7-8 Bisedon Soils	we = Water Content, percent			
Ref.	Elevation1:			oe = Organic Content, percer	r		
	Commisted Information						
	Sample Information				-		
Depth	Sample NoO-5 &	Time	Sample Description and Classification 0 - 0.5 Course	·	Unified Classification	Analytical Collected (Y/N)	Elevation
	Ru#1 1635 1.5	1635	Brown to die brown fine to coarse sent and grand. Moist, massive Con Very little recounty as 44-5" cobble phond of sample casary				
5	Δ						
	RUM #25-10 5.0	1640	5-6 feddish darkbrown frietowedur: with slight feddish (i on?) strumy - M 6-6.5 Brown fine to medica sand, Very M	oist,	5P		
	UC-513-427-6/8-XXX	1645	6.5-7.2 Dark bour to very dork lower And Sand with your of gravel and Bassic/o	40 wedon			
			Fragments. Very mosst to wet. 7.2-9' Very dark brown to black organ Gras sand well descriped with some ro	regard	5P		
Ю			7.2-9 Very dock brown to block organ Fire such well descriped with some ro- wood fragances etc. (Peatymentern). Style 9-10 Dark brown have such and organ material (Peaty)	suferadar	Peat		
	Run#3 10-15 4.8	1645	10-11,2 Similar to 9-10 sapel	• • •	50		
			11.2-11.8 Parkbrown to darkolustrony for	styles 20	GW		
_			West-				
	06-5B-422-13/5-XXX	1710	11.8-15 Olive to blin brown to obsegray / to grave such with some gravel and so a little sitz and carles. Web, masser	alto co	Cuy	m	
	13/2	1	In the - with the contract of the Charles	1.00			
10		<del>                                     </del>		20			
15	<u> </u>						_
Strati		rmen soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / of	<i>a</i>		
	Herry Veulff			Boring: $5B$	24	22	

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: S& File No.:	3 422
Oper Logo Cheo Date Bori	ractor: Reach howard ator: Date Dusch led By: Jenn Kause ked By: C7m Start/Finish: 6 75 50 and Location: Jenn Levation!	itte	Auger ID Sampler: Hammer	e ID/OD: 47/000 invest cusing/16000 a sectorsing	Definitions:  S = 5pfit Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  4 = Unconfined Compressi  wah = weight of 140 lb. har  war = weight of rods  we = Water Content, perces  ee Ouganie Content, perces	· ver Strength (psf) numer u
Rei.	Sample Informat	ion				
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)
15	Ruty 15-20	4.4	1655	15-17 Proble borown five to sur grandwith some to a little co Wet, (Possible cave in material 17-20 Olive gray to gray fine to are and grand with some sitt and the	eladopo:0 Whileso esual 20	Gygun
				Wet massing wide ruge of gram sizes		GM
<b>y</b> ∘	(Vn #520-23	2.6 X	17/0	20-22 Olice gray to dark gozy to sight gray fine to a barse syndamla gravel abbles and a little set wety massive Encountered hard maderial at 22'BC Bottom of 20 rig = 23'BCS.	hy greated with PID=6 =3.3 65 =0	GW
<b>1</b> 5				5,000000		
Note	<u>es</u>					
Street and	ification lines represent approximate infer conditions stated. Fuctuation	borddaries betw of groundwater	nen soil types, may occur du	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 0 Boring:S&	f2 422

MACTEC	Project: Olin Chemical Superfund Site Location: Utilimington MA  Bo	ring: 5'B - 423
		e No.:
Operator: Pale Dysder Bore  Logged By: Complete: Samp  Date Start/Finish: \$180 9 Hamn	Hole ID/OD: 47/6/62 inwes/outer casing 02  ID/OD: NA  Her: Oave Chapman  Her Wt./ Fall: NA  Level3: est 8'B65 (based on 50% observations)	initions: bit Spoon Sample bin Wall Tube Sample ock Core Sample ock Core Sample situ Vane Shear Test inconfined CompressiveStrength (psf) weight of 140 lb. hammer weight of road Water Content, percent organic Content, percent
Sample Information		
Depth Recovery	Sample Description and Classification	Unified Classification Analytical Collected (Y/N) Elevation
Run#1 0-5 4.4 141 0c-56-423-01.0000 142	0-1.00.0:7 Arklower Kin to course sent with some gravel. 0.7-1 Onwardight brown f	
5	0.7-2.5 Brown Fire to median such with trong of course sound. Moist, massive, no visuos odos. uniform gram no 2.5-5 Very light brown to light group of neto sound with some course sendand granel.  Moist today, no visions structure of odos.	P10-76 5P weden P10=250
RUN#2-5-10 1426 0C-5B-423-5-6-XXV 4.8 1436	5-6,5 Dark howentodo chaying file to 191, course sand and grown with colobband a Moist, 6.5-8 Brown fine to course sund and grown with some colober and a little site. Moist	10= 184 10 11 11 12 = 10 Y
(0)	5-85 Gray fine to course said and gravel with  5000 wholes. Morse  8.5-10 Brown to do in brown fine to course  said and gravel with some silt. Moist  to very moist.	PM=3.8 M=8.4
Ruy#3 10-15' 4.7 143	5 10-11.8 Ohie gray to gray five sandand site matrix with grows cother, and mediatic sacre sand. Very motst.  11.5-12 Olive to olive trany five to crowse sand with some sand and transcribed in wist.	P(1) = 0.8
0c-5B-423-B-14-XXX 144	13-13.18 Gray to durking fine suday 51/t with median to a was said and grand proist massive (t. 11 1/10) 13.8-15 Gray its allowed grand and a bise saidy silty pounds that a ppear to be priver and only	PID = 0.4 GM Y PID = 0,48 (icelHur)
Notes	bedwoh in = 14'BLS. Bottom of boring = 15,2B65	
	pes, transitions may be gradual. Water level readings have been made at times rule to other factors than those present at the time measurements were made.	ring: 5B-423

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin	Boring: File No.:		SB	3-423	
Cond	tractor. Boot Longwood		Drilling B	6107090016-09	D-6::4:				
	tractor: Boart Longyear			Method: RotoSonic e ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing	<b>Definitions:</b> S = Split Spoon Sar				
	rator: Dale Duscher				U = Thin Wall Tube R = Rock Core San				
	ged By: Jerry Rawcliffe		Auger ID	Dave Chapman	V = Insitu Vane Sh q <sub>p</sub> = Unconfined Co		Strenoth (	nsf)	
-	necked By: CTM Sample ate Start/Finish: 8/18/2009 Hamm			•	woh = weight of 14 wor = weight of roo	0 lb. hamn	ner (	psi)	
_	ring Location: Area 8 Water				wc = Water Conten	, percent			
	f. Elevation:		water Le	vel: estimate 8' bgs (based on soil observations)	oc = Organic Conte	nı, percent			
itei.	Sample Information								_
	Sample Information						_	1	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.4	1415	0-0.2' Asphalt					
	OC-SB-423-0/1.0-XXX		1420	0-0.7' Dark brown fine to coarse sand with some gravel. 0.7-1' Brown to light brown fine to medium sand.		15.8	sw	YES	
<u> </u>				1-2.5 'Brown fine to medium sand with traces of coarse san Moist, massive, no obvious odors, uniform grain size.	nd.	62			
				2.5-5' Very light brown to light gray fine to medium sand with some coarse sand and gravel. Moist to dry, no obviou	s	76	SP		
5				structure or odors.	<u> </u>	280			
3	Run #2 5 - 10	4.8	1425	5 (5) 5 11	1				
	OC-SB-423-5/6-XXX	4.0	1423	5-6.5' Dark brown to dark gray fine to coarse sand and grawith cobbles and a little silt. Moist.	vel	184	GYY.	YES	
				6.6-8' Brown fine to coarse sand and gravel with some cobbles and a little silt. Moist.		4	GW		
				8-8.5' Gray fine to coarse sand and gravel with some cobbles. Moist.		10.2	GW		
				8.5-10' Brown to dark brown fine to coarse sand and grawith some silt. Moist to very moist.	vel	3.8			
10				with some sitt wioist to very moist.		8.4			

10-11.8' Olive gray to gray fine sand and silt matrix with

gravel, cobbles, and medium to coarse sand. Very moist. 11.8-13' Olive to olive gray fine to coarse sand and silt with

13-13.8' Gray to dark gray fine sand and silt with medium to

powder that appears to be pulverized rock (rock flour). Some

some gravel and traces of cobbles. Moist.

Estimate top of bedrock is  $\sim 14'$  bgs. Bottom of boring = 15.2' bgs.

cobbles are quite large.

coarse sand and gravel. Moist, massive (Till-like).

13.8-15' Gray cobbles and gravel and a fine sandy silty

**Notes** 

Run #3 10 - 15

OC-SB-423-13/14-XXX

Jeny 72. Rawliffe

2.4

0.8

0.4

0.9

GM/GW

GM

YES

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

1435

1445

4.7

Page 1 of 1

**Boring:** 

			Project: Olin Chemical Superfund Site			
		~		20	11010	
	MACTE	٠	Location: Wilmington, MA	Boring: SB	-424	
	ATTENDED TO			File No.:	, ,	
			Client: Olin.	THE NO		
Cont	ractor: Boart houseveur	Drilling N	lethod: Rogsomic	Definitions:		
Oper	rator: Dale Discher		e ID/OD: (nuercusin 00 4 7/62 Octescasin 00 60	S = Split Spoon Sample		
	7			U   Thin Wall Tube Sample  R   Rock Core Sample		
	jed By: Jewy Kawcliffe	Auger ID		V = Insitu Vane Shear Test		
Chec	ked By: C. Marzalini		Dave Chapman	q = Unconfined Compressive		
Date	Start/Finish: 8/19/19	Hammer	Wt./Fall: A A	weh = weight of 140 lb. hamn wer = weight of rods	ner	
Bori	ng Location: Aven 8	Water Le	vel <sup>3</sup> : 815"	we = Water Content, percent		
	Elevation1:	1		oe = Organic Content, percen-		
_	0					
	Sample Information				-1	
					Unified Classification Analytical Collected (Y/N)	
		>		0.01	g = g	_
		ē	Sample Description and Classification	1 V 11	교육 (유)	.0
١Ę	h	<u> </u>			S S S	, a
Depth	Sample No.	Kecovery			Unified Classifica Analytical Collected (Y/N)	Elevation
<del>                                     </del>			^	010-1-	-0 200	ш_
	Rm#10-5 3,		0-5 Brunto light brown Line to me	1:102 1.70	24	
	OC-5B-474-0-1.0-XX	1135	o o o o o o o o o o o o o o o o o o o	200	<0 Y	
			sand, moist, massie, becomes slight dorhercelored with depth. No sursual odners.	elly = 0.8	SP T L	
		-	darhorcelored with sonth	<i>)</i>		7
			The state of the s	PIN = 1.4		
<u> </u>			No sursual values.	P10) - 1.9		
				0 0		
				PIN = 0.6		
ŀ			1 1 h. 0.0 - 0.1 de	,		
l '			Encontared appreced Dorland as 5 %	Pint 1.2		
5			Encountered approved boulder at 5'BL Guing to move viz ~ 10' Sorthead.	111/0 112		
	Run #25-9 4	3 1205		A		
	110000	13 1003	5-7 Brown to drawk brown fireto	110213	l	
l			course sunt and growel. Who ist, massive	wide _	DW/	
			course sust and growel. Moist, massive truge of gravin 5 ize. 7-9 Olive brown tooline fricts course say	= 2.0	Siy/w	
			7-9 Olive brown tooline fireto course su	rd		
			and green with gome sil 4 and small coloh	Pro	1	
<b> </b> -			in the second of the second of the	2 2 7		
			Moist, massive, silteer whesen layer (7.5-81	) = 37	v	
l	UC-513-474-7.0-90-XXL	1215	No vargual velors or starting.		Yes	
			Encountered what appears to be conversed.	at = 12		
	Run # 3 9-15 51	3 1220	9'865.			
100	1,0,0,0,0		, ,,,,,	P10= 3100		
10			2273/	PINO SIPP	4	
			19-11 higher going to olive going time to cocuse 5	un are	GW/	
	1	i	grove fraces of culstres and sitt. Some le	way = 6 pp	1/6M	
			9-11 hight gray to olive gray fire to cocres & growl traves of calobles and 57/4. Some le with aly and very moist layers.	/ / //	1	
			a contradict - Contradict	nl =98pp	an	
<u></u>			11-15 Dark divi any fine to coarse sent a gravel with some silrand cololies. Very, with some silvaer chesine areas Majers.	w ! //		
			gravel with some silt and colles. Very	u dist	Call.	
1			with some silters who sine arous Alexon	-117	-yam	
1			The state of the s	= 1' / p	, ,	
1	1					
l				= 124,		
15				- 147	ראסון	
Note	es					
1						
ı						
1						
1						
1						
Strat	ification lines represent approximate bositida	ries between soil types	transitions may be gradual. Water level readings have been made at times	Page / ~	)	
			e to other factors than those present at the time measurements were made.	Page / of	L	
	(\			1		
1	Jens Curly a			Boring: 5B	-424	

TV

MACTE	С	Project: Olin Chemical Superfund Site Location: Wilmington, MA- Client: Olin	Boring: 5ß File No.:	- 40	24		
Contractor: Book on year Departor: Dall Departor: Checked By: C. Manalin; Date Start/Finish: \$19.09 Boring Location: Area & Ref. Elevation':	Bore Hol Auger ID Sampler: Hammer	Davo Chepman	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q = Unconfined Compressive Strength (paf) wah = weight of 140 lb. hammer wer = weight of rods we = Water Content, Dercent				
Sample Information			oc = Organic Content, perce	-			
Sample No.	Recovery	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
12un#415-19 4	6 1230	15-17.5 Dark olivegran fine to course sand and grand with some silt and cobbles. Very moist, massic, undo co f grain size.	un fine	GW/	М		
1X-5B-424-17-19XxX	1235	17.5-19 Olive any to light olive brown of to course sunt and grand with colours some sitt. Wet, massive bottom of sample has a mottled appearance.  Chaquient what appears to be hedveliast	= 2.4	B	Yes		
20		Bottom of boing = 19.21Bas					
lotes						_	
Stratification lines represent approximate bounds and under conditions stated. Fluctuations of growth and the conditions of the conditions	aries between soil types, sundwater may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of a	2			

	<b>//</b> //////////////////////////////////	EC		Project: Location:	Olin Chemical Superfund Site Wilmington, MA	Boring:		SF	3-424	
	1,11,10,1	LO		Client:	Olin	File No.:			7 727	
				Cilent.	6107090016-09	li lie ivo				
Conf	tractor: Boart Longyear		Drilling N	lethod: Rotos		<b>Definitions:</b>				
	rator: Dale Duscher		Bore Hol	Hole ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing			mple e Sample			
	ged By: Jerry Rawcliffe			D/OD: NA			nple near Test			
_	cked By: CTM			Dave Chapm	nan	q <sub>p</sub> = Unconfined Co woh = weight of 14	0 lb. hamr		(psf)	
				Wt./ Fall: NA		wor = weight of roo wc = Water Conten	t, percent			
	5g		Water Level: 8.5' oc = Organic				ent, percent			
	ef. Elevation: Sample Information			<u> </u>						
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.6	1130				1.7			
	OC-SB-424-0/1.0-XXX		1135						YES	
					n to light brown fine to medium sand. Moist, ecomes slightly darker colored with depth. odors.		0.8	SP		
5					d apparent boulder at 5' bgs. ll rig ~ 10' southeast.		0.6	SP		
_	Run #2 5 - 9	4.3	1205	5 51 D			13			
					to dark brown fine to coarse sand and gravel. ive, wide range of grain size.		8			
				some silt an	brown to olive fine to coarse sand and gravel v d small cobbles. Moist, massive, siltier cohesi '). No unusual odors or staining.		37	SW/C	N. 7	
	OC-SB-424-7/9-XXX		1215	1	d what appears to be concrete at 9 ' bgs.		12	SW/C	YES	
10	Run #3 9 - 15	5.3	1220	9-11' Light with traces very moist	t gray to olive gray fine to coarse sand and gray of cobbles and silt. Some layering with dry an layers.	vel d	31			

11-15' Dark olive gray fine to coarse sand and gravel with some silt and cobbles. Very moist, with some siltier cohesive

**Notes** 

Jeny 72. Rawliffe

GW/GM

GW/GM

117

124

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

areas/layers.

Page 1 of 2

**Boring:** 

	<b>MACT</b>	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA	Boring:		SF	<b>B-424</b>	
	WINCI	LC		Client: Olin	File No.:		) I	)- <b>72</b> 7	
				6107090016-09					
Cont	ractor: Boart Longyear		Drilling N	Method: RotoSonic	Definitions:				_
Ope	ractor: Boart Longyear rator: Dale Duscher			e ID/OD: 4 7/8" OD inner casing/ 6" OD outer casing	S = Split Spoon Sam U = Thin Wall Tube				
Logg	ged By: Jerry Rawcliffe		Auger ID		R = Rock Core Sam V = Insitu Vane Sho	ear Test			
	cked By: CTM			Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 140	lb. hamme		psf)	
Date	Start/Finish: 8/19/2009		Water Le	Wt./ Fall: NA	wor = weight of rod wc = Water Content oc = Organic Conter	, percent			
Ref.	ng Location: Area 8 Elevation:		Water Le	vei. 0.0	oc = Organic Conter	n, percent			
	Sample Informati	ion			<u>.                                      </u>				
Depth	Sample No.			Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Sample No.	Re	Time			PIC	L Cla	An Co	Ele
15	Run #4 15 - 19	4.6	1230						
				15-17.5' Dark olive gray fine to coarse sand and gravel wi		4.9			
				some silt and cobbles. Very moist, massive, wide range of grain size.		6.2	GW/C	GM	
				17.5-19' Olive gray to light olive brown fine to coarse sar		8.4			
	OC-SB-424-20/22-XXX		1235	and gravel with cobbles and some silt. Wet, massive, botto of sample has a mottled appearance.	om	2.4		YES	
				Encountered what appears to be bedrock at 19' bgs.  Did not get any recovery of rock.		2.4	ш	1111	
20				Bottom of boring = 19.2 feet bgs.			1 1 1		
25									
Note	<u>es</u>		-			•			
					Jeny 1	12. 1	Rai	vbffg	
								•	
				s, transitions may be gradual. Water level readings have been made at times ue to other factors than those present at the time measurements were made.	Page 2	2 of 2			
			- "		Boring:		SF	3-424	
					9		~ -		

	MAACT	EC		Project: Olin Chemical Superfund Site	Don't CD	11-	_		
	MACT	EC		Location: Wilmington, Mt.	Boring: SB-475				
I				Client: OUN	File No.:				
				6107090016 9			·		
Cont	ractor: Brost house	ey-	Drilling I	Method: Roto Sourc	Definitions:				
Oper	ator: Dave Duschie	1	Bore Ho	e ID/OD: June 1010 47/5/ Outer 010 62.	S = Split Spoon Sample U = Thin Wall Tube Sample				
	jed By: Jem Rawc		Auger ID	VOD: MA	R = Rock Core Sample V = Insitu Vane Shear Test				
Chec	ked By: C. Mazzelin	1	Sampler		q <sub>p</sub> = Unconfined Compressiv		psf)		
Date	Start/Finish: 8 19 19			Wt/Fall: NA	woh = weight of 140 lb. ham wor = weight of rods	mer			
	ng Location: Aren 8		Water Le	vel3: 7.5 Based on soil Observation	we = Water Content, percent oe = Organio Content, percer				
Ref.	Elevation¹:			The state of the s	de - Organia Content, percer				
	Sample Informati	ion			L	r			
						.i.			
		2		Out of Duration and Classification		cal	ed e	E .	
ے ا		×e		Sample Description and Classification		ied	Yti	ati	
Depth		Recovery	Time			Unified Classification	Analytical Collected (Y/N)	Elevation	
┡┻	Sample No.	3.9		n 121 111 12 12 C	1.5 0. 1	30		<u> </u>	
	Runti D-5	3,9	0450	0-12 hight brown to brown fine to med	an sen	0.1	Y		
	DC-51-425-0-1.0-XA	\$L	0455	with a libble coarse sund and gravel. approved structure, inderrye grainsize.	ingino	SWI	ſ		
			-	approved strame, warrye grainsize.	1 119-019	100	<b>Y</b>		
			<del> </del>	112-50 Dark brown fireto wedin sa	1 .0				
<u> </u>			<del> </del>					-	
			-	some to a little coorse sundamlquel.	= 5.8	SW			
l			<b></b>	Moist, massin, no invoval odo is dete	sted.	1			
l			<del> </del>	,	= 2.4				
_					= 3.2				
5	/ Ha		1						
	Runt25-10	4.7	1000	5-7,8 Brown Fire to median sund, very	worst PIDZ14	SP			
1				unitrem grain size, no apprecient structure	e. '	212			
l									
l	05-50-425-60-80-	XXX	1005		= 52		7		
V			<u> </u>						
				7.8-10.0 Brown to dark brown Fireto wes	lun = 68				
~				sursivery moist to wet, uniform gran	الله المعالمة	SP	1 1		
				no obvious odors.	= 90	ŀ			
i .									
10					PID = 110	_			
	Run#3 10-15	5.3	1010	10-10,5 Brounds durk brown Fixe to and	un sand We	SP			
			<u> </u>	with some coldes at 10,5% Wet, mussue	11/1/2 10	•			
			<u> </u>	10.8-13,0 Davk boown to very dah supish bon	2/2				
l				P: ma was surley langualizable salala	Eller wart	GW			
L.				frie to crare gustard granturth astile	o and mora				
				13.8-13.8 Olive to olive town fine- medical with silt and some course southwith some is, 8-15 Olive fire to cause small with some and ground. Very moist.	Sun 211	Cist			
				with silt and some course scaland grown		GW/G	m		
				13,8-15 Olive firetocarre sund with some	Silt - 16				
				and gruel. Vary moist.	19219				
15				V (	rigira	<u> </u>			
Note	es								
1									
0.									
1									
1									
					,				
				, transitions may be gradual. Water level readings have been made at times	Page / o F	ત			
and	indenconditions stated. Fluctuations	oi groundwate	r may occur du	e to other factors than those present at the time measurements were made.		•			
	Ilus Kull	0			Boring: 55	.42	-5		
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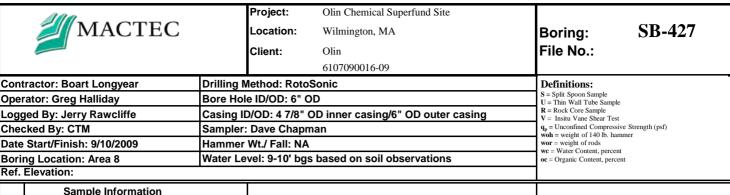
	Star			Project: Olin Chemical Superfund Site				
	MACT	EC		Location: Wilmington WA	Boring: 58	42	5	
	111101				File No.:	10		
				Client: OL(N	File No.:			
				6107090016~09				
Cont	ractor: Buchhouse	en		Method: Roto Sonic	Definitions:			
Oper	ator: Dule Desche	k		e ID/OD: 47/8 DID INNECESSING 6 ON OUTERCASING	S = Split Spoon Sample U = Thin Wall Tube Sample			
Logg	ed By: Jean Rawc	lfle	Auger ID	10D: MA	R = Rock Core Sample V = Insitu Vane Shear Test			
Chec	ked By: C. Mazzelin	. 1		Dave Chapman	qp = Unconfined Compressiv	eStrength (	(psf)	
Date	Start/Finish: 8 14 109		Hammer	Wt./Fall: NA	weh = weight of 140 lb. ham wer = weight of rods	umer		
Bori	ng Location: Avea 8		Water Le	vel3: 7.5 hasedon soil disensations.	we = Water Content, percent			
	Elevation <sup>1</sup> :				oc = Organic Content, percen	n'		
	Sample Informat	ion	·					
	- Campio inicia					Ę		
			1			ĕ		_
		e <sub>T</sub>		Sample Description and Classification		ي ما	ا يؤييًا	io
윤		8	0			fie		vat
Depth	Sample No.	Recovery	Time			Unified Classification	Analytical Collected (Y/N)	Elevation
ڀ	Run 14 15-20	4.9	1020	17 5 M. 1. A. M. 1 . A. C. Santas and C.	1 04			_
	KIN 194 15 70	7.7	1000	15-17.5 Ulivetaline pray fine to coorse su and graduite some sit wet, massive	al P10=0.4	GW/	1	
			<del> </del>	agriffme wir some sitt. Wer massive	٨	GW/	M	
			ļ	17.5-19 Olive brown to olive gray fractococa and grand with some silt and cobbles, we	urse soul			
				austravil with some silt and cobbles, we	un woist _ = =	GM		
					1 75,2	1 ,		
				tower, motted.				
				19-20 Countralisames Anetocourse su	ulas	1		
	-		1	19-20 boutsolingouy fretocouse su grant with some silt. Very waist to	wet :5.4	GM		
	06-913-425-18-20	Val	1025	massine.	- 1	Cont		
	00-763-48-18-80	A.La	1000	massive.	= 2.8	-1	Y	
W	A	2	1.00			-	,	-
	Runt5 20-23	3.5	1030	sand and sprend with some silt and col	TSP PID=0.4	1		
				sand ansgrand with some site and col	Max. weres	GM		
]				moist to wit, massine	1 21 7	CWI		
			,	22,5-22.0 halet over five said silt an	eddle =1.5	1		
1	<del></del>		7	22:5-23.0 higher group fine said silv an with some moding to coase sound and a Appears to be rich flour/bed rock.	Course	1		
$\vdash$			-	Account to Lawy Lithough a long	2016			
٠			+	Miles 10 Me was 1007 Deproses	70.7	-		
			+	Estimated top of bedro de = 22.5 b	.<	1		
			<del> </del>	ostrom south or seem out the see	,		1 1	
				0.1 (1 25 (1))				
25			J	Bitom of borry = 230'BG5				
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Strat	fication lines represent approximate	boundaries bet	ween soil types or may occur du	, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	rage Lot	*		
l and	77 7	////	, 5000. 00		Page 204 Boring: 5B			
ı	Jerry Kault	11 0			Boring: Sス	.4	25	
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	MACTEC		Project: Olin Chemical Superfund Site Location: Wilmington MA  Client: Olin	Boring: SB - 4み6 File No.:				
Ope	ractor: Bourt Loui yaw rator: Dale Duckler	Drilling M Bore Hol Auger ID	e ID/OD: Jayer 47/ Outer 6	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample				
Checked By: C. Manuelin Samp				veStrength (	ps()			
Date Start/Finish: 81909 Hamme			/t./ Fall: Web = weight of 140 lb. hammer					
	ng Location: Brew 5 Elevation:	Water Le	ver3: 8,5' Meaninged in bribale	we = Water Content, percent ee = Organic Content, percent				
IXE.	Sample Information							
Depth	Sample No.	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
	Run#10-5 3.3 0SB-426-0.0-1, JXXX	1415	0.2-3.0 Darkbrown to down olive bon fine to medium sand with a little grown Contameda priese of plastic = 1/1" thick posses	el. = 0.6	sp	Veg		
5			section of plastic pipe (large diameter) For 3.0-5. Light brown fine to medium sa Moist, no apparent structure, some reddent string which appears to be iron string		sp			
	Run#25-7 1.9 0C-5B-426-50-70xxx	<u>।५२०</u>	5-7 Brown fine to weden no apprects tructure, colde go at bootom of recovery	vel	5P	M <sub>2</sub> 5		
	Boulder 7.5-91 -	1///	. Bo der	ρ				
10	Run # 3 9-15 (c.)	1430	9-15' Olive to olive gray to course send and ged the silt. Wet, massive s the	1 ravee	SiV			
15	0C-5B-476-13-15 XXX	1435		0 3		2		
Note Street	piece of plasti encurred	ween soil types.	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / o⊬ Boring: SB		6		

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington MA.  Client: Olin  File No.:			-426		
Oper Logg Chec Date Boris	ractor: Buryt house ator: Dale Duscke led By: Teny Raws ked By: C. Mandini Start/Finish: 81919 ng Location: Area 5 Elevation:	Melá	Bore Hol Auger ID Sampler: Hammer	Method: Roto Sonic e ID/OD: Inner 47/200/OUR 6=0D.  10D: NA  Dane Chapman WL/Fall: NA  vel3: 8,5 mensured in brehole	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test q, = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer wer = weight of rods we = Water Content, percent oe = Organic Content, percent				
Depth	Sample Informati	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
	Runt 4 15-16.5	2.0	1440	15-16 Olive any to dray five to Be sundamighand with stonesite wet massine wide raye of grainsize.	0.5	SWK	ω		
				16-16.5 Gray to dark gray fine so with goldes growl and medius same. (Appears to be poliverized of Estimated top of hedroch = 16.0 180 Hom of boring = 16.5'B65	ocouse uch). 365	GM			
20				30 y 6m of 601 mg = 1013 565					
					1				
Note	<u>es</u>								
		1							
				transitions may be gradual. Water level readings have been made at times o to other factors than those present at the time measurements were made.	Page Page 3	42	6		

	MACT		-	Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Client: Olin.	Boring: SB-42フ File No.:				
Date Start/Finish: 9/10/09  Bore H  Logged By: Teny Rawc of August  Sample  Bate Start/Finish: 9/10/09  Hamme				Method: Robo Sonic le ID/OD: 6000 MOD: 47,000 inner casing/6000 orter casing Wolffall: NA Wel3: 29-10' Based on soil chreening	Definitions:  S = Split Spoon Sample U = Thin Well Tube Sample R = Rock Core Sample V = Insitu Vene Shear Test Q = Unconfined Compressive Strength (psf) wha = weight of 140 lb. harumer wer = weight of rods we = Wetter Content, percent oe = Organic Content, percent				
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
	Runtil 15-20	4.8	1435	with a trice of grand. Wet, hightreddish brown layer 2contlish at = 18 Slight organic odor.	= 21	SP	400	ш	
	00-58-477-17/1	1-224	1505	19-20 Dark gray to very dark group grow with a little median to coarse suld. W	vel et = 23	GP GW	<b>Ø</b>		
	Rem#5 20-12	3.0	1455	00-21 Olive gray to dive brown medicing to course such with trees of growel are sit. West, massed. New very way be come and dust virgation of right from 2 24 feat \$65 - No recovery of the deuse were Estainte top of bedrock = 21'B65 Bottom of boring = 23'B65.	= 6.8 P10=8.4 e 24.1 = 22 = 5.5 wint.		Yes		
				000000000000000000000000000000000000000					
lote	S								
						•			
Stratifi and un	ication lines represent approximate by ider conditions stated. Electuations of the conditions stated.	Juntaries between depundwater i	en seil types, t nay occur due (		Page $\mathcal{J}_{\mathcal{S}}\mathcal{K}$ , Boring: $\mathcal{S}_{\mathcal{B}}$ -		7_		

MACTEC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Client: Olin  File No.:					
Contractor: Beard Long years Operator: Oreginal day Logged By: Terry Cawcliffe Checked By: Date Start/Finish: 91009 Boring Location: Free 8 Ref. Elevation: Sample Information	Bore Ho Auger II Sampler Hammer	Wt./ Fall: NA wel3: Q-10 1665 bused on Soul discriptions	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vens Shear Test q = Unconfined Compressive Strength (psf) who have weight of 140 lb. hammer Wor = weight of rods we = Water Content, percent oe = Organie Content, percent				
Sample No. Sample No. S. 3. 3	e II	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
06-50-427-0/1.0-522	1340	0-012 Asphilt 0.2-1.0-Brown Rine to coarse sund an with a true of silt (Paremoid subgarde). 1-4 Brown to dark to rown medium sund a little fine and coarse sund and a trose of grown. Worst, relating unitoren.	191020,5 Lgravel with 0,3	SP			
Run#2-5-10 3,5	1340	4-5 hight brown to strong reddish browns fine to median sund with three of silt. Moist.	=0.5				
		5-10 higher brown to brown median sand with a little fine sand, Moist to very moist, some slight strattle of color. Crain size very conform.	PIN=0.5	50			
05-212-424-8/10-XXX	1400		=6.1 =18				
UE-5B-427-12/14-164	1435	13-12 Brown medium sand little fine to excose seent 12-13 Gryish bornen medium little fine to carrer sent	70°-71°0	5P			
		13-15 Grapho derh grang medun sand with coarse sand and a 1,44 has sand. Wet, strong organic order	some	5P			
<u>Notes</u>					4		
Stratification lines represent approximate boundaries between and under conditions stated) Fluctuations of groundwater n	en soil types, t	The state of the s	age /o≠ o	2	7		



	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.3	1335	0-0.2' Asphalt	0.5			
	OC-SB-427-0/1.0-XXX		1340	0.2-1' Brown fine to coarse sand and gravel with a trace of silt (Pavement subgrade).	0.3	SW	YES	
				-	0.2			
				1-4' Brown to dark brown medium sand with a little fine and coarse sand and a trace of gravel. Moist, relatively uniform.	0.5	SP		
				4-5' Light brown to strong reddish brown fine to medium sand with traces of silt. Moist.	0.8			
5	Run #2 5 - 10	3.5	1340		0.5			
	10111112 5 10	3.3		5-10' Light brown to brown medium sand with a little fine sand. Moist to very moist, some slight stratification of color, grain size very uniform.	0.2			
					6.1	SP	YES	
10	OC-SB-427-8/10-XXX DUP/XMS/MSD		1400		18			
	Run #3 10 - 15	2.5	1410	10-12' Brown medium sand with a little fine to coarse sand. Wet.				
					180	SP		
				12-13' Grayish brown medium sand with a little fine to coarse sand.	440			
15				13-15' Gray to dark medium sand with some coarse sand and a little fine sand. Wet, strong organic odor.	4010	SP		
15	ĺ		l		I	I		

**Notes** 

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**Boring:** 

Operator: Greg Halliday Bore Ho Logged By: Jerry Rawcliffe Casing I Checked By: CTM Sampler Date Start/Finish: 9/10/2009 Hammer			Bore Hole Casing II Sampler: Hammer	Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin 6107090016-09  lethod: RotoSonic e ID/OD: 6" OD  D/OD: 4 7/8" OD inner casing/6" OD outer casing  Dave Chapman  Wt./ Fall: NA	Boring: File No.:  Definitions: S = Split Spoon San U = Thin Wall Tube R = Rock Core San V = Insitu Vane Sh q <sub>0</sub> = Unconfined Cc woh = weight of Id wor = weight of roc we = Water Content	e Sample aple ear Test empressive 0 lb. hamn ls	Strength (	3-427	
	ng Location: Area 8 Elevation:		Water Le	vel: 9-10' bgs based on soil observations	oc = Organic Conte	nt, percent			
	Sample Informati	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.8	1435	15-19' Brown medium to coarse sandwich a trace of grav Wet, light reddish brown layer 2cm thick at ~18.5' bgs. Slight organic odor.	el.	4.9 6.2 8.4	SP		
20	OC-SB-427-17/19-XXX		1505	19-20' Dark gray to very dark gray gravel with a little medium to coarse sand. Wet.		2.4	GP	YES	
	Run #5 20 - 22	3.0	1455	20-21' Olive gray to olive brown medium to coarse sand w traces of gravel and silt. Wet, massive. Recovery may be cave-in due to vibration of rig - encountered very hard material from 21-22' bgs. No recovery of dense material. Estimate top of bedrock = 21' bgs.  Bottom of boring = 22 feet bgs.	rith	ПТ	Ш	ПП	ПП
25									
Note									
NOTE	<del></del>				Jeny-	7<.	Ra	while	1
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page Boring:	2 of 2		3-427	

E Analytical  Collected  (Y/N)	35W
E Analytical  Collected  (Y/N)	Classification (Pa) (Inc.)
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Analytical Collected (Y/N)	Classification Canalytical Collected (Y/N)
Analytical Collected (Y/N)	Classification Canalytical Collected (Y/N)
Yes	35W
Yes	35W
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Yes	35W
Yes	35W
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Yes	Yes
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PID	PID
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MACTEC	Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Client: Olin	Boring: File No.: 5B - 4 2を				
ogged by The Court August Start/Finish: 9/10/09 Hamm	g Method: Ruto Sonic lole ID/OD: (6"00 ID/OD: 47/800 inner casim/6"01) orks oasm er: Jerry Rawerffe er Wt./ Fall: NA Level3: 9-10' based on observan	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sampl R = Rock Core Sample V = Insitu Vane Shear Tee q, = Uncontined Compress woh = weight of 140 lb. ha wor = weight of rods  wor = Water Content, perce oe = Organic Content, perce	live Strength (psf) numer			
5 Run 20-25 2-2 12:	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)	Elevation		
	Homed-coorse sond, wet. b 23-25: Mostly brown, coorse some grouel, wet. cobble	auden	Gw Yes	7		
	25' = end of boring		Ter	ó ó		
otes						
4.1						

	100-			Project: Olin Chemical Superfund Site					
1	MACT	EC		Location: Wilmington, MA B	Boring: SB	- L	129		
1				lan			1001		
				Client: Oliv					
_			L	n . O. P. L.	- Cutiliana				
	ractor: Boart house	en	Drilling N		Definitions: == Split Spoon Sample				
Oper	ator: Dale Dysch	<del></del>		E IDIOD: 4 46 DO I WAS GREAT TO DO STREET OF D	Thin Wall Tube Sample				
Logg	ed By: Jeny Kanch	ote	Auger ID						
Chec	ked By: Ctm			Dave Chapman	= Unconfined Compressive		psi)		
Date	Start/Finish: 8/25/0	9		TVC Tall: 707-E	oh = weight of 140 lb. hann or = weight of rods	mer			
Borir	ng Location: Area lo		Water Le	vel": 10, 2 CC surgered in boreball -	e = Water Content, percent				
Ref. I	Elevation':		×8'	B65 Based on soils—wetathodox of pest -	: = Organic Content, percen	· · · · · · · · · · · · · · · · · · ·			
	Sample Information	on							
					-	on			
		_	1			Unified Classification	~ ~	_	
		ē		Sample Description and Classification		균을	ti ti	, o	
<b> </b> #		ò	0	, ,	ľ	fle	출흥숙	Elevation	
Depth	Sample No.	Recovery	Time			Unified Classifi	Analytical Collected (Y/N)	8	
	Ruff 0-5	3,2	1245	0-206-1-1-1-1-1	PID=17	GP			
	TUMP 0 3	3.0-	11-13	0-2.0 Grand rip: rap (ballast) for RR tracks,	11000	O1			
			<del> </del>	KICTYONS,	ļ				
					215			ĺ	
				a== 10 de han Pe de mola al				İ	
				2-5 Park brown Fine to meding sent				<u> </u>	
				with a lible grown course sand and traces of abbills. Brokerup cobble zone at 23-3,5865. Morst		30			
			<u> </u>	traces of aldiber. Brokerup cobble zone	=19			İ	
				cut 2 3-3,5 1365. Motst					
15					=21			-	
H	Run #2-5-10	5.0	1250	5-65 Consolitors of of some	010 16	PAN	1		
	FON 410-3 10	0.0	1100	5-6.5 Grayishbrown gravelwith was fretocourse surd, Moist	PIDZ 14	GW,	0		
1			-	Mierocoare sura, vilosi		/9	Pt		
		<del></del>		6.5-7 Brown ou darkborn fine to weeding	217				
			122	surd with little to Nows of coarsessed	carel	59/	Yes		
	OC-5B-429-6/8	-XXX	1300	6 10 cm of Source all de surgestions	tin's	1/5/	1765		
			<u> </u>	delns. Becomes fire with deposed orga	unic = 0	1 "		İ	
				7-9- Very dark brown to block pead with trues of fine smal. Well deryglocal 9-10 Brown to durk own thetic scress				ĺ	
			<u> </u>	reg- very dark south to the pear and	20	SD			
				trues of the since were decoposed		2,			
10	1			9-10 Bio and State of What The Course go	20.6	14			
H-	Run # 2 10-15	3.3	1310	with will a drawary ascondos	ed vogunes	Ned			
	Sayle our quite	W. W.	120	10-13' Gray to olive gry site and fine so with a little to trover of mediun to course	und PINZO				
1	distribed in drille		1	with a little to transcer of medica to course	2 sand		1/25		
		<del></del>	<del> </del>	gustopuck. Very west, poor recovery as	& cuall	٠			
	bunk.		+	I don bast dien Julier	ا ن ت	SM			
			-	13.15 Comy Aneto course sent and gre sit with some cubiles. Uet,	0 0	-			
1				13.15 Gray Fine to course such and got	ruel and	/ all			
1				eit with some cubiles. Wet,		المام			
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anol	Commission States. Photoaudits	/1///	,	1					
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	MACTE	EC			oring: $SB$	-4	29		
				Client: Oli A	ile No.:				
Cont	ractor: Road homas	Zur-	Drilling N Bore Hol	SIDIOD: 47/200 Sant Cue // MADA HECTORIS	Definitions: S = Split Spoon Sample U = Thin Wall Tube Sample				
	ed By: Jean Rawcli	He	Auger ID.	IOD: ALA	= Ruck Core Sample = Insitu Vane Shear Test				
	ked By: GTM		Sampler:	Dave Chapmen	<ul> <li>Unconfined Compressive</li> </ul>		pst)		
	Start/Finish: 8/25/09		Hammer	77. Turk	sh = weight of 140 lb. hama or = weight of rock	ter		ļ	
	ng Location: Physic D				: = Water Content, percent Organic Content, percent				
Ker.	Elevation':		≥ 8° €	east on sein (west ut botom of pour). "			_		
	Sample Information	n	r			-			
Depth	Samula Na	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
15	Sample No.	311	1320	15-16.5 Gray silty gravelwith firetoc			200		
,,	OC-58-429- 66/18-KA		13:25	sul with Kroces of colobles. West, muser	- CORECT-11,2-0P	mu			
-	0C-3B-1-1-1911-1-		13.0	11 5-18 Com to all 10 com Porte de 1800 co					
				and coored with the silt and house	ud =0				
1				16.5-18 Grento olive gray fixe tucourse so and grand with the site and braces whiles. Very moist towert.					
			<b> </b>	19-19 h. lar any and le latter.	z13				
-	7.7 \	XX	XV	18-19 higher group grand and colo bles is ruch floor (51/4, bras such with from me to correr sound)	die .				
	/ / /	$\sim$	A X	to course sand)	din = 137/	)M			
			1	Duy.					
20					A 100 - 100				
				Estimate top of roch = 18'BGS Bottom of boring = 19'BGS			-		
				231.00					
				R-Ham at lopping = 19 BCS					
		-		0300mg, 42-3	i				
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Strati	fication lines represent approximate hos	and print bate	ween soil types, may occur du	to other factors than those present at the time measurements were made.	age 2 of				
and/t	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	7/2	, 00001 000		oring: 5B				
	felly Kurly	111		B	Soring: > B	-4.	29		
V	( ) W	1							
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nd Classification  to median sml p(0= 0  Cooperation  The to be to e course squal and silve to e course squal and les and silve.  Our dings in color.
to median sml p10=0 50500 correspond.  ors,  ors,  ors,  ors,  ors,  orsespondand  sur  les and silv.
des and silve
Fine to madein sunt decreped growne : 0 de Muhuaul n Pine to madein PIN = 0 se of sitt. very moist.
As dellorum fine  & SID. con 1 some 20  ik stenny Avan ready Peot?)  y Füe to cooke saud  whe coul ready sid
a most to very most most ne- to wedin sul with CM Wet, massul PID=0
toccore sunland junorsttowel, 20 Gonyow
20

	MACT	EC		Project: Olin Chemical Superfund Site Location: W. Images, MA Boring: 50	3-430			
				Client: Olia				
Oper Logg	ed By: Jeny Rawc		Auger ID	e ID/OD: 476 DD invest custs /6" O D o stee Core cis.  S = Spit Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Institu Vane Shuar Test	·			
	ked By: Cflm Start/Finish: 825 U	9	Sampler: Hammer					
	g Location: // You 'G	>	Water Le	vel3: 6-8 Bulled ov 3vil5 we = Water Content, perce oe = Organic Content, perce				
itel.	Sample Informati	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification Analytical Collected (Y/N)			
15	Ruffy 15-22	6,2	1515	15-19 Com Grangerul withing to P10-0 coase sold with some coules and sold, week, marsing.	Cayou			
20	OC-58-430-19/J1-	XXX	1535	19-20 Gry to dive to dive brown the to care sand and grand with some site and trace 20 of colobles. Very noist to wet massive 2022 high typing grand and rock low will some small colobles?	Cuyom			
70	- //	×>		Encousterel hurd modernial estruntal 30 top of vocile cet 21 1365				
				Bottom of bonin = 22'B65				
		-						
					1.			
Note	<u>aa</u>							
				In	63			
Strati and u	fication lines represent approximate nder conditions stated. Fluctuations	condition both	may occur du	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.  Boring: 5 8	430			
	00	W						

MACTEC			Project: Olin Chemical Superfund Site Location: Wil mington MA.  Client: Olin  File No.:			
	tractor: Bourt hongyeor					
			U = Thin Wall Tube San			
Logged By: Dem Runchill Auger II						
Checked By: C. Physiolini Samples			Pave Chipman V= Insitu Vane Sh		(tssf)	
Date Start/Finish: 8130は9 Hammer			Wt./ Fall: Woh = weight of 14	0 lb. hammer	4-7	
Boring Location: Aven 5 Water Le			vel3: 27-81 (Wet Spils in 6 area) wer = weight of roo			
Ref. Elevation: oc = Organic Content, percen						
Comple Information						
	Sample Information					
Depth	Sample No.	Recovery	Sample Description and Classification  Concrete 0 - 25.8 3.0	Unified	Analytical Collected (Y/N)	Elevation
		Ø 1 <del>015</del>	30-315 massue, our form grach size (Bell), 7.5-4 Concrete	61 SP		:
~~ 5	OC-59-431-0/12-XAX	1015		5W	Yes	
	Run#2 5-9 4	8 1000	5-6 Ulivegry todive brown five tococres and PIDZ and grand with a little silt and colyhles. Maist, massure some concrete frequents 6-9 Dark bown to due brown free to coase sent =	0.6	1. 1	
	UC-SB-431- 7/9-XXX	1025	moist to met with a little site and trace wills. Very		405	
			moist to met vide range of grain size,	61		
			wassuc.			- 1
				0.4		- 1
10		Gry.	Congrated & 9' BGS BOULDY			
			Drilled 9-12.5 into boulder - Courts more south x 5' and redrill.			
			Buttom of 1st a Heupt 12.5'BGS			
						1
Note	<u> </u>					
Notes h						
A5-15						
Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times.						
Stratification lines represent approximate boundaries where soil types, transitions may be gradual. Water level readings have been made at times and uniter conditions stated. Huctuations of a pour vater may occur due to other factors than those present at the time measurements were made.    Page / 04 2						
Boring: 3					3/	

	MACTEC		Project: Olin Chemical Superfund Site  Location: Wilmington WA:  Client: Olin	Boring: SB	B-431					
Oper Logg Chec	ractor: Bourthouguer ator: Date Duschet ed By: Terry Rawelitte ked By: C. Manales	Bore Ho Auger ID Sampler	Method: Ruft Souic  e ID/OD: 47/6°/6°  MOD: NA 	Definitions:  S = Spit Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q <sub>p</sub> = Unconfined CompressiveStrength (psf)						
	Start/Finish: 8/20109  Ing Location: Area 5	Hammer Water Le	Wt./ Fall: NA	woh = weight of 140 lb. han wor = weight of rods						
Ref.	Elevation <sup>1</sup> :	I water Ec	7VB	we = Water Content, percen oe = Organic Content, perce						
	Sample Information									
Depth	Sample No.	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation			
10			53-431 /stablept hit boilds hedovelast. Moved a 5'south for this 2nd attempt. Screend vervey from 0-8 PID rought wateral similar to 1st attempt except less encountered from 0-5!  2nd a tempt encountered boildes/budwel Going move onto the next founties Bottom of bong = 8'  Ind Attempt of	From 0.1 +01.2 <u>CONCRETE</u> concrete	рри					
	lication lines represent approximate boundagies be		, transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page Z o√ Boring: 58-	~2 43/					

	MACT	EC		Project: Olin Chemical Superfund Site Location: Whington MA. Client: Olin	Boring: 5B-43 <b>3</b> File No.:					
Ope Logg Chec Date Bori	ractor: Board house rator: Dale Dusched ged By: Jeon Rowe sked By: C. Mandini Start/Finish: 8/2019 ng Location: Aven 5 Elevation <sup>1</sup> :	-	Hammer	S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample Oave Chapman  Daye Chapman			st siveStrength (psf) annmer tnl			
Depth	Sample Informati	Recovery	Tíme	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
	Rubl 0-5 W-56-432-6/112-21	3.3 Ø	1430	0-1,5 hight brown fine to cocure soul gravel with a little site. Dry, massa some roots and a fraguent of world debons.		હાય	YES			
5				115-5.0 Darkbovunto dark gnyishbovi Eneto wedun sand. Moist massive, Sweet organic odor. Vunfomquunsne.	= 74 = 55 P(D= 88	SP				
	Kup \$2 5-10 0c-58-422-5/7-X	4,8	1435	5-6 Similar to 1.5-5.0 suplo. 6-10 Bosson Fine to medium surl. Veryon	2.24	5P	YES			
				soils contain material that becomes a strictly residue ou gloves and supling emp	-110					
10	Rum #3 10-15	5.1		10-12 Concrete  12-15 Pine to cookse sund and grewlown some wishles and a little set. huyer	= 100 th A0=20 of different	Chil				
15	oc -58 - 432-14/16-X	***	1515	12-15 Pine to coorse sud and greelend some colobles and a lible site. hayers colored neteral = 0.5-1.0 thich of netro other moun, to high of live gray, to pole brown, to oline, to dark gray moist moist	=13 very >5.4 =3.1		485			
4	e <u>s</u> 5-P6									
		of groundwater		transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page /of? Boring: 5 B		32			

MACTEC	Project: Olin Chemical Superfund Site  Location: Wilmington, WA.  Boring: SB-432
	Client: Ofin File No.:
Operator: Oake Occlude Bore H Logged By: Terry Rowal Mc Auger Checked By: C. Mandia: Sample Date Start/Finish: 870/19 Hamme	Method: Roto Sovic  Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  Q = Unconfined Compressive Strength (per)  woh = weight of 140 lb. harmer  were weight of 140 lb. harmer  were Wester Content, percent
Ref. Elevation <sup>1</sup> :	ec = Organic Content, percen
Sample Information  Sample No.	Unified Classification Classification Collected (Y/N)
15 Dun # 4 15-17 1.4 1505	Dork of in brown frieto medius sunduit PIN=110ppin 30 a hold to trues of course sund and ground. PIN=110ppin 5W 16' Encountered possible top of rech. Both Holdes, DID=85- Same as 6-10' of a 1/2/09  Bottom of booring = 17.0' B65  Top of bedroch estimation (se 16.0' B65.
20	
Stratification lines represent approximate boundaries between soil tylenge under conditions statud. Fluctuations of groupsyster may occur	s, transitions may be gradual. Water level readings have been made at times ue to other factors than those present at the time measurements were made.    Page 2 0 + 2   Boring: 56-432

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin	-433					
	ractor: Boarthange	eur	Drilling N		Definitions:					
	ator: Dale Dysall	1		e ID/OD: 47/4/62	S = Split Spoon Sample U = Thin Wall Tube Sample					
Logg	jed By: Jeon Ruwa	litle		IOD: MA	R = Rock Core Sample V = Insitu Vane Shear Test					
Chec	ked By: CTM			Dave Chapman	q <sub>p</sub> = Unconfined Compressiv		psf)			
Date	Start/Finish: 8 3 39			Wt./ Fall: NA	woh = weight of 140 lb. ham wer = weight of rods	mer				
	ng Location: Areca 4		Water Le	vel3: 8-8.5 Messened in bouchall a casing.	we = Water Content, percent					
Ref.	Elevation <sup>1</sup> :				oe = Organic Content, percer	·				
	Sample Informat	ion	,		L					
Depth	Samula Na	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
┝╩┈	Sample No.	3.9		0-0.2 Asphilt	0.47.2		405	ш.		
	Runty 0-5		0810	Army Mal ) Boy Laduchlan . Co.	PIDZOP	749	1000			
	<i>∞c-5B-c</i> (33-0/1.3-24		0815	bosins 0-1.1 Brown to dark brown Fine to with a little grand and trues of course of some gray untial inough unerat 205's Faith 1.1-1.3 Very dash brown to black fine to	ardien Fire	5P	485			
			ļ	sund. Moist, no unusulados, leanes a ste ou glores.	you steem					
			<del>                                     </del>	1 1/1- handle	rela Gaia					
		<del></del>	<del> </del>	1.3-5 Brown bearing whose resource and	0	SP				
ا ـــــا				1.3-5 Brown bearing lybor bourn wollder to weden sand. Moist, massie , no mos	we wants.					
2	1 40 -	# A ***	- 6-34-5					_		
	Runta 5-10	4.9	0815	5-7 Brown to hight brown fine to mede	un PM =0.6					
				sullwith true of overce such moist	D		V.			
1	06-513-433-5/7-6		0890	very moist, some peddishloning strings	6-7'		Yes			
l	X.X			very moist, some peddishloring string	31.24	724				
$oxed{oxed}$	XA	15								
	XM	Ø		7-10 Owen fine to walnus sund ken moint to wet, slight stratified appeared No vouscel odors. Uniform grain size.	1 Pm =3.6					
				wast to net slight stratified annument	e	50				
				Na contract of a land from Combia 5120	= 0					
				A a send the control of the control						
10					= 0					
	Bun#3 10-15	5.0	0830	with a little courses at the work of	mul. PIV) =0	68/60	v			
				11. 7-13 Brown to clive lower fine to course a with some group, cocressed and all the cold and silt. Me vanisat other all the cold and silt. Me vanisat other all the cold and silt. Me vanisat other all the cold and fine to coorse some ground with some silt and times coldies. Very moist to wet, wassur, wich range of some digital stained colored layers.	md =0					
				and silt. Ne vouseal others chiteched	<i>=</i> 0,2					
1				13-15 dive to vive bowy firetocoorse su	erd and	Gus				
1				growel with some silv and trues colles.	B10=000	W.				
1			1	Very noist to wet mussue, widereuse o	f grain size	1				
I				Sans deduct about the Land to	y	1				
15				Done butue standaycoursed layers.	1710 2017					
Note	es									
								Į.		
8,	fication lines represent approximate	boundaries het	veen soil times	transitions may be gradual. Water level readings have been made at times	Page 3	1 -				
				transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page ( a		ኒ			
	(). ( <i>)</i> (() (()	/ _			- 60					
	Herry Keinly	1			Boring: $\mathcal{S}_{\ell}$	43	3			
	00			-						

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client: Olin	Boring: 513~433 File No.:					
Oper Logg Chec Date Bori	ractor: Boarthour ator: Onle Deschis ed By: Terry Rawe ked By: CTM Start/Finish: BON 09 ng Location: Press 4 Elevation:	8	Auger ID Sampler: Hammer	e ID/OD: InnorcasiagoD 47/8/UNESCACAUD 62 10D: MA	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q, = Unconfined Compressive Strength (psf)  web = weight of 140 lb. hammer  war = weight of rods  w = Water Content, percent  o = Organic Content, percent					
Sample Information  Time Sample No.				Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation			
15	Run #4 15-23	5.9	0835	15-16.5 Olive to olive brown fine to med sund with some coorse sund frank, an colobles and sith bey moist to wet, mus will range of growns so.	dalible stat.	GW/G	u			
20	OC-515-433-20/42	KH	0850	10.5-B' Olive to olive brown to Olive gray three sund with rome if to out course said a grand or to use, or 15-21. To live to vive gray of olive brown fore coarse sund and small with a little of the structures colours, Al-His some lyther yellowing	to = 0.1 heology.	Gust	щ			
				Battunte top of roch cut 21.5'065						
35				Bottom of boring = 23'B65.						
30 Note										
	21.5									
Strat and	flication lines represent approximate inter conditions stated. Fig. working	boundaries bei of groundwate	ween soil types er may occur du	, transitions may be gradual. Water level readings have been made at times a to other factors than those present at the time measurements were made.	Page 2 of Boring: SB	23-43	33			



Project: Olin Chemical Superfund Site

6107090016-09

Water Level: 8-8.5' bgs measured in borehole with casing

Location: Wilmington, MA

Olin Client:

Boring: File No.:

**Definitions:** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Dale Duscher Bore Hole ID/OD: 6" OD Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 8/24/2009 Hammer Wt./ Fall: NA

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

**SB-433** 

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

Ref. Elevation:

**Boring Location: Area 4** 

	Sample Information							
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.9	810	0-0.2' Asphalt	0.5			
	OC-SB-433-0/1.0-XXX		815	0.2-1.1' Brown to dark brown fine to medium sand with a little gravel and traces of coarse sand. Moist, some gray material along layer `0.5' bgs, fairly uniform grain size.	0.3	SP	YES	
				1.1-1.3' Very dark brown to black fine to medium sand.	0.2			į
				Moist, no unusual odors, leaves a slight stain on gloves.	0.5			
				1.3-5' Brown becoming lighter brown with depth fine to medium sand. Moist, massive, no unusual odors.	0.8	SP		
5				medium sand . Moist, massive, no unusuai odois.	0.8			į
	Run #2 5 - 10	4.9	815	5-7' Brown to light brown fine to medium sand with traces of	0.5			
	OC CD 422 5/7 NWW		920	coarse sand. Moist to very moist, some reddish/orange			MEG	İ
	OC-SB-433-5/7-XXX -XXD		820	staining6-7'bgs (appears to be iron staining).	0.2		YES	İ
	-XMS				1.2			İ
	-MSD			7-10' Brown fine to medium sand . Very moist to wet, slight stratified appearance. No unusual odors. Uniform grain size.	6.1	SP		
					18			
10								
	Run #3 10 - 15	5.0	820	10-11.5' Brown fine to medium sand and gravel with a little coarse sand. Very moist to wet, massive.  11.5-13' Brown to olive brown fine to coarse sand with	180	GP/G	W	
				some gravel and a little cobbles and silt. No unusual odors detected.	440			
15				13-15' Olive to olive brown fine to coarse sand and gravel with some silt and traces cobbles. Very moist to wet, massive, wide range of grain sizes. Some darker stained/colored layers	4010	GW		

**Notes** 

Page 1 of 2

**Boring:** 

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

**SB-433** 

Jeny 72. Rawliffe

	MAID			Project: Olin Chemical Superfund Site					
	MACTEC			Location: Wilmington, MA	Davina.		CT	<b>8-433</b>	
	WIACI	LC		Eccation: Willington, MA	Boring:		SI	<b>-4</b> 33	
				Client: Olin	File No.:				
				6107090016-09					
Cont	ractor: Boart Longyear		Drilling N	ethod: RotoSonic	<b>Definitions:</b>				
Oper	ator: Dale Duscher		Bore Hol	e ID/OD: 6" OD	S = Split Spoon San U = Thin Wall Tube	Sample			
Logg	jed By: Jerry Rawcliffe		Casing II	/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sam V = Insitu Vane She				
Chec	ked By: CTM		Sampler:	Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 140	mpressive		psf)	
Date	Start/Finish: 8/24/2009		Hammer	Wt./ Fall: NA	wor = weight of rod wc = Water Content	ls	ici		
				vel: 8-8.5' bgs measured in borehole with casing	oc = Organic Conten				
Ref.	Ref. Elevation:								
	Sample Informati	on							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 23	5.9	835	15-16.5' Olive to olive brown fine to medium sand with					_
				some coarse sand and gravel and a little cobbles and silt.		4.9			
				Very moist to wet, massive, wide range of grain sizes.			GW/G	M	
				very moise to well, massive, wide range or grain sizes.		6.2			
			1	16.5-18' Olive to olive brown to olive gray fine to medium					
				sand with silt and coarse sand, gravel, and traces of cobble Very moist to wet, massive.	S.	8.4			
				18-21.5' Olive to olive gray to olive brown fine to coarse		2.4	GM		
				sand and gravel with a little silt and traces of cobbles. 21-					
20				21.5' some lighter yellowish coloring.					
	OC-SB-433-20/22-XXX		850	21.5-23' Light gray silt and fine sand - rock flour with gra and cobbles and medium to coarse sand (Pulverized rock				YES	
			Ш	Estimate top of rock at 21.5 feet bgs.		Ш		Ш	ПП
				Bottom of boring $= 23$ feet bgs.					
25									
Note	<u>es</u>				· · · · · · · · · · · · · · · · · · ·				
					Jeny 1	12.	Roi	ubffp	
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page 2	2 of 2	2		
					Boring:		SI	3-433	

							. St	Land to
1	AND TA CO			Project: Olin Chemical Superfund Site	·			
1	MACT	EC		Location: Wilmington, Mt. Bori	ing: 5 (	2 L	174	
1				IOD-114.	ing. 🤌 t	, ,	13 1	
1				Client: Olia File	No.:		.,	
-								
Con	tractor: Board home	a yever	Drilling I	Method: Roto Sanic Defin	nitions:			
Ope	rator: Grey Hallid	X24	Bore Ho	le ID/OD: (1/2)0 S = Split	it Spoon Sample			
Log	ged By. Jen Rawa	1.de	The last	U=Thin	n Wall Tube Sample			
Che	ked By: Cryh	-11170	Sampler	Dave Chapman	ck Core Sample nitu Vane Shear Test			
	Start/Finish: 9 10 00	1	Llamman	100	confined Compressive	e Strength (	(psf)	
			nammer	Woh = W	veight of 140 lb. hamu veight of rods	mer		
	ng Location: New S		Ivvater Le	we = Wa Obs machin Soil Bonn Observations we = Wa	ater Content, percent			
Kei.	Elevation:			oc = Org	ganic Content, percen	1		
	Sample Informati	tion						
						=		
						Unified Classification		
1		- E		Sample Description and Classification		ca	ad a	r c
<del>ട</del> ू		8	0	Comple Description and Classification		ed	i t t	ţį
Depth	Sample No.	Recovery	Time			Unified	Analy Colle (Y/N)	Elevation
-			(3.73.45			5.0	Analytical Collected (Y/N)	Ü
	1CUM#10-5	2,4	0740	0-0, 2 Asphalt.	10=0.3			
	UC-5B-434-0/10	-Kell	0750		0-0,5	SW	Yes	
				5.2-2' Brown to death brown fine to coas	sse	300	' /	
			1	Sundand ground with Mould of \$10. Moi f	20.4			
		1	<del>                                     </del>	massine (Asphilt roust-subgrule				
-		<del></del>	<del>                                     </del>					
			<del> </del>	2.5 Brown median soul with a little fire woods send and troses of growl.	=0.8			
1				Charles to be bounded to		Sicil	1 44	
				The weard sun and traces of gravel,		1/0-	i	
_				Moist - paste pipe est to shich Priese of most jamed in bornell limited recorn	=2.6	'SP		
5				Piece of the property is brond living of				
	Run #2 5-10	3.3	0800	There is no set the course in the interest in	ey.			
	1000 H & 3-10	3,3	0000	5-6 Brun to dock hour fine to weeken p	118			
				Such with a trace of coorse sundulgrand. 14	out!			
			<u> </u>	Such with a trace of coorse sunculspend, the 6-7 hight stylling resides however medicing sund with a little fine sund and coorse sand.	7150 -	SP		
100			1	with a little fine sound and coorse soul.	= 0.4	"		- 1
				7-8 hight brown medin send with a				- 1
	06-53-434-7/4	- 111	0815	The first of more wearen sing with a				
	00 3.5	1	0017	little fine sweet. One thin brown layer			Yes	
				8-10 Brown to slightly reddish brown		ļ	162	
				8-10 Strate to Strate Testant Whiteh	0	SP		- 1
A. I.				to weden sunt. Very moistower			- 1	
10				Preses of iron p. pl 6.8" Diamber recovered.	6.2	- 1		- 1
	Pur 183 10-15	3.9	0835	The state of the s	<u> </u>			
			0000	15-175 Oark bown to slive bown to AK	D= 2.(	500		
				Olive grown the formedly such the a to	n what	78		- 1
		ļ		of silt Readily bown string 14 17 5000	212	- 1		- 1
ŀ				of silt leddin bown strined layer at 17,5 BGS. 17.5-18 Brown Rueto coarse succent gravel with a little to a trove of silt, Wet.	-1.5			- 1
				with a little may be a chailt lich		GW		
				Al Carlotte Control West	- 2 : :			
1				18-20 Olivetooline brown file to coarse sond	= 0.4			
				and gravel. Wet massine				
				V 1		Cal.		
15			ļ			إيمان	. 1	
					20.2	10	~	
Note	<u>s</u>	•						_
1	manufaced some	Alia	· · lace	I on Rut 2 coursel? colorles sugle bon	1	,		- 1
,	INCOMMENT SOME	Jung ve	ny na	on rem & conview . Costell sught has	ruleso	els u	en hut	. 1
	(steun rising offs	di Sun	4)	/			1	' 1
						,		- 1
	reweard proces.	of muh	l(cast	ion?) pipe (6-8" Diamber) from = 6-9"365				- 1
				1.11-c. 1.11-c. 1.100) INON 20-4 368				
								- 1
								- 1
								- 1
Stratif	ication lines represent and in the	oundaries hehi	en soil hone	ransitions may be gradual. Water level readings have been made at times	1			
an	der conditions stated. Flyclustions	of groundwater	may occur due	to other factors than those present at the time measurements were made.	104	)		
- ()	enn Vaul XII			were made,	6	~		1
0	1/1/			Davis	ng: 5B-	4:	?LI	
	V / V			DOTIF	iy. 🗸 🗸	13	1	

	MACT			Project: Olin Chemical Superfund Site  Location: Wilmington, M. Boring: S  Client: Olin  File No.:	58-434				
Operate Logged Checke Date St Boring	etor: Board homoror: Greatland of By: CTM artifinish: 910/00 Location: Aren & evation: Sample Informa	il He	Bore Ho Auger I Sampler Hammer	Method: Ruho Sanic  le ID/OD: 6000  NOD: 47800 inner cacing/6000 orter casing  Dave Chromm  Wt./ Fall: NA  wel3: 6-9' 865 based on soil large survey are "West Content, per or "Organic Content, per or "Organic Content, per or "Organic Content, per or "Organic Content, per or "West Content, per or "Organic Content, per or "West Content, per or "Organic Content, per or "West Content, per or "Organic Content, per or "West Content, per or "Organic Content, per or "West Content, per or	est ssive Strength sammer ent	(bat)			
√ Depth	Sample No.	Recovery	Ti Be	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation		
ш,	-5B-434-15/16.	11.0	0430	15-16 Dash while to dask office group PID:0. Rine to course Sundwith some SIT, growed, and troves of corbiles. Wet, massing =0.2 Ho unusual orders detected.	i Gun	Yes			
20				Encountered very hard material at 15.5-16' unable to penetrate with rotosonia Possible refusal on boulder? Bottom of Donn= 16' R65					
Notes									
Stratification and under o	on lines represent approximate by conditions stated. Illustrations of	oundaries between a pour dwater r	en soil types, ti	Page 2 of Boring:					

	Projects Oli-Chamical Constitution						
MACTEC	Project: Olin Chemical Superfund Site						
MACIEC	Location: Wilmington, MA	Boring: 5	3-435				
	Client: Oliv	File No.:					
	Onu	1 110 110					
Contractor: ZEROA Drilling	Method: Direct Push						
		Definitions:					
Operator: 3030N President N.C. Bore H	lole ID/OD: 1.50/30(estimule)	S ≈ Split Spoon Sample U≈ Thin Wall Tube Sample					
	ID/OD: NA	R = Rock Core Sample					
	er: Dane Chapman	V = Insitu Vanc Shear Test q = Unconfined Compressi					
	er Wt./ Fall: W/	woh = weight of 140 lb. har					
Boring Location: Green Water	Level3: (GW at 20,5' B65	wor = weight of rods we = Water Content, percer	nt				
Ref. Elevation:		oc = Organic Content, perce					
Sample Information							
5	Sample Description and Classification		n galga				
#   §   •	Cample Description and Classification		ati ct iii				
Depth Sample No.			Unified Classification Analytical Collected (Y/N)				
Steen #10-5 2.3 1315							
		PIDZO	Pr yes				
# OC-59-435-0.0/1.0-000 1445	- roots, leaves decreed aguine matter. Oogs	4 i Sucup	100				
	_ deossit. West	,					
	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
	1.0-25 Darkbrown fine to course son	d	SP				
	and or runge mutter rulet che his	1					
	manufactured said Symbolica	with					
	ond organic metter: Wet stratitions organic layers curl sandlayers.  25-5 Olnegry to brown fine to coorsend growel. Wet mosine.						
	- 25-5 Olneson to brown Aine to coor	e sun to					
5	- and march what more		Gir				
	Com Trace. Com product.		Gu				
Stewn 25-10 2.6 1330							
<u> </u>	5-10 Gry todah gray fine to coarse soul and grad with a silt. Wet, massine.	PID =0					
	- course sundand and with a	horocont					
	Till I late with the state of t		(0/				
	- SIP. Wes massur.		6P/60				
			7600				
	┥	20					
OC-5B-435-6.0/12-XXX 1335	=						
00-38-735-6.0/10-XXX 1335	•••		185				
		20					
10		•					
Speciet 3 10-15 1,9 1340	10-15 Con Andahan Cinta						
	The to coo	ise PiDeul	(6W)				
	10-15 Cony to data gray fine to coo	st51/t	/GR				
	and cobbles. Wet, massine.	• •	701				
	- weight						
UC-58-435-11/15-XXX 1400		20.1	1 - 1 - 1 - 1 - 1				
UC-SB-438-11/15- XXX 1400	4		Yes				
4	-		/67				
	<b>—</b>						
	_						
15							
Notes	Refusal at =15'BGS #Colle	LD 1	- 1 1				
Refusal at 15 was a color bination			e soil surgle				
Was a color burnetion							
or being in extremely denselhard	15 DES	learl ss bo	ultspoon.				
material and the indial to do not	riene.	4	110 1				
the small this Com	I be me been preciple to march	so the meters	al toramotion				
Pataccale to al	To the state of the state of the state of						
Tour of so our with increasing like	rynown or 100 seen The Sayeple and equipment		1 1 1 1 1 1				
Offset and redulbed to 14 &	Buttom of boring = 15'BGS after rieve I - It may have been possible to peretu- lyhoud of bossey the sample and equipment of get enough sample for the various	analyses					
		7.000					
Stratification lines represent approximate boundaries between soil type	es, transitions may be gradual. Water level readings have been made at times lue to other factors than those present at the time measurements were made.	Page /	(				
O l	would ractors than those present at the time measurements were made.	/ 0	1				
July Kully		Davin Ca					
( ) - w-v		Boring: SB	755				
· () ///			4				
0							

MACTEC		Location: Client:	Wilmington, MA Olin 6107090016-09		Boring: SB-435 File No.:	
Contractor: Zebra Drilling		Method: Direct Push			Definitions:	
Operator: Jason Fredericks	Bore Hol	e ID/OD: 1.5"/	3" (estimate)		S = Split Spoon Sample U = Thin Wall Tube Sample	
Logged By: Jerry Rawcliffe	Auger ID	/OD: NA			R = Rock Core Sample V = Insitu Vane Shear Test	
Checked By: Chris Mazzolini Sampl		Dave Chapm	an		q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer	
		Wt./ Fall: NA		wor = weight of rods wc = Water Content, percent		
Boring Location: Area 1	Water Le	vel: GW at ~ 0	.5' bgs		oc = Organic Content, percent	

Ref. Elevation:

	Sample Information	Sample Information						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Sleeve #1 0 - 5 *OC-SB-435-0/1.0-XXX	2.3	1315 1445	0-1' Very dark brown organic debris, roots, leaves, decayed organic matter. Boggy swamp deposit. Wet.	0	Pt	YES	
				1-2.5' Dark brown fine to coarse sand and organic matter. Wet, stratified with organic layers and sand layers.	0	SP		
				2.5-5 'Olive gray to brown fine to coarse sand and gravel. Wet, massive.	0	GW		
5	Sleeve #2 5 - 10	2.6	1330					
				5-10' Gray to dark gray fine to coarse sand and gravel with traces of silt. Wet, massive.	0	GP/GV	W 	
					0			
10	OC-SB-435-6/10-XXX		1335		0		YES	
	Sleeve #3 10 - 15	1.9	1340					
				10-15' Gray to dark gray fine to coarse sand and gravel with a trace of silt and cobbles. Wet, massive.	0.2	GW/0	GP YES	
	OC-SB-435-11/15-XXX		1900		0.1			
				Refusal at ~ 15' bgs.				
				Bottom of boring = 15' bgs.				
15						I		

**Notes** \* Collected surface soil sample after boring completion using spade and stainless steel bowl and spoon.

Refusal at 15' was a combination of being extremely dense /hard material and the inability to retrieve the sample tube from the material. It may be possible to penetrate the material for another foot of so but with increasing likelihood of loosing the sample and equipment. Offset and redrilled to 15' to get enough sample for the various analyses. Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 1

**SB-435 Boring:** 

	MACTE	C	Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client: Olin	Boring: SB- 436 File No.:				
Con	tractor: Boart house	C Drillin	Method: Roto Sanic	Definitions:				
Ope	rator: Dule Duschet		ole ID/OD: 47/82/62	S = Split Spoon Sample U = Thin Wall Tube Sample				
Logo	ged By: Jenn Rawclif	le Auger	D/OD: NA	R = Rock Core Sample				
Che	cked By: C. Pressolini		T: Dave Chapman	V = Insitu Vane Shear Test	eStrength (	nef)		
	Start/Finish: 8 20 19		r Wt./ Fall: NA	weh = weight of 140 lb. ham	Inconfined CompressiveStrength (psf) weight of 140 lb. hammer			
	ng Location: And 5		evel3: 8-5 Buscular Sui absentues	wer = weight of rods we = Water Content, percent				
	Elevation <sup>1</sup> :		10' entraned introvelate	oe = Organic Content, percer				
	Sample Information							
ı	- Cumple information			•				
Depth	Sample No.	Recovery	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
$\Box$	Run # 0-5 3	3.3 130	0-0,3 Concrete.	PID=0.1	- 40		- 0 - 0	
	UC-513-436-0/1.0-Xex	1305	0.0.5 highs brown fine to coorse send of with some small colorles and concerte not 0.5-3.5 Brown to derk brown fine to a	ile. reduce 20.8	SA	Yes		
			such with a little grows and trous of so cubble or brigh Bryments, Dork bypour material appears to be organic debris our	intl ion =0.2	50			
5			7,5-5.0 hight brown free to meder south mangered with the round free to meder south	Moust 3,1	50			
	Run#25-10 3	1309	5-8 Brown to light brown fine to med moist, untern grain size, no unusal o	un send PID= 0.8	SP			
	06-515-436-6.480-6	d 1310	5-10 Olive to olive brown fine tocoars	esal = 0,2		Yes		
			and grand, Wet, massine, rideringe,	fgruinsize. =0.7				
10		64		<i>PIN =0.</i> (				
	Kun#3 1075	13/0	10-15 Brown to yellowish brown fineto coasesculand grand with trees od s and colables. Moist, with rayer of jum (nterspersed with layers of light gray	= 0.9	SW/	EW		
	Q-5B-436-15/15-XX	× /32	to gray freto coarse such and growth siloy material that looks like rock the or privaried concrete  Slight "metallic" odor.	wit = 0.2		Yes		
15			July meranic back	PM =0.8				
Note	ification lines represent approximate∥bo∮n		as, transitions may be gradual. Water level readings have been made at times					
and	Jung Carry	roundwater may occur	lue to other factors than those present at the time measurements were made.	Boring: SB		136		

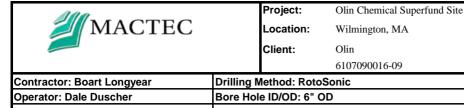
_								
	MANACT	TP.C		Project: Olin Chemical Superfund Site				
1	MACT	EC		Location: Wilmington, Mt	Boring: Sの	- 4	36	
1				Client: Oliv	File No.:	•	•	
				O N N				
Cont	tractor: Boot hon	eyer	Drilling i	Method: Rotosomic	Definitions:			
	rator: Dale Bred	rer_	Bore Ho	le ID/OD: 476/6"	S = Split Spoon Sample U = Thin Wall Tube Sample			
Logo	ged By: Jon Raw	dille	Auger ID		R = Rock Core Sample			
	cked By: C. Mardini			: Dave Chapman	V = Insitu Vane Shear Test q = Unconfined Compression	e Strength (	(psf)	
	Start/Finish: 8 30 09			Wt/Fall: VA	woh = weight of 140 lb. han wor = weight of rods	mer		
	ng Location: / trea 5		Water Le	evel3: 10' in bankale 8' based on soils.	we = Water Content, percent se = Organic Content, percent			
Kei.	Elevation¹:				be = Organic Content, perce			
	Sample Informat	ion			l	_		
			Ì			Unified Classification		
1		2	İ	Sample Description and Classification		cat	ed e	<u> </u>
£		8		Sample Description and Classification		ied	\$ \$ £	atic
Depth	Sample No.	Recovery	Time			Unified Classifi	Analytical Collected (Y/N)	Elevation
15	RUN#3 15-165	1.4	1330	Guconserd possible top of bedroch at 15- 15-15.5 Une to vive gray cubbles with course seed and a little site. framel BB 15.5-16.5 Gray to light gray cololles a In what appears to be privared rack	15.2 000	20	ROS	ш
1	THUMF 3 13 THIS		1330	15-15 = Wie to the area confidence it	C.s. +2	1		
1			1 .	course and only lite sile	PIDIOS			
1			†	Grewl (DG)	FIDEUIS			
			1	15.5-16.5 Gray to light suy cololles	and growel	1		
				in what appears to be pulversed rel	(.			
,				Part III	_			
1				Estimated topot rich cut 15.	3			
20				Estimated topof roch at 15.				
				(B)				
		-	-					
		•	-					
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L								
1			1					
			-					
Note	<u>es</u>							
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1								
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1								
		A .						
				transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 206	2		
1	Lours (Comb)	de			Page 2 0 £ Boring: 5 <i>S</i> -	- U	21	
4	- A wage	11			Dornig. 55	7.	56	
		V						
	,							

Buard house Date Duscher Tean Runch C. Marrelia: nish: 83-1 199 ion: Hrea Y n': Sample Informati	The	Bore Ho Auger II Sampler Hammer	Method: Pobsenic  le ID/OD: 47/6/6"  Definitions:  S = Spht Spon Son  U = Thm Wall Tube  R = Rock Core Sam; V = Linsin Vane R  q = Unconfined Cor  wh = weight of rod  we = weight of rod  we = Water Content,  T'BCS based on Soil observation  Sample Description and Classification	Sample ple ple ple ple ple ple ple ple ple		-
John Discher Jeon Ruwch C. Marrolisi nish: Spri 199 ion: Hrea Y n': Sample Informati ample No.	Recovery	Bore Ho Auger II Sampler Hammer Water Lo	le ID/OD: 47/3/6"  S = Split Spoon Sam U = Thin Well Tube R = Rock Core Sam Y = Institu Vane She Y = Unconfined Cor Wh./ Fall: Whe  Well <sup>3</sup> : 9' Meuricelin boreliel T'865 based on Soil observation  S = Split Spoon Sam W = Institu Vane She W = Rock Core Sam V = Institu Vane She W = V = Institu Vane She W = Water Content, or = Water Content, or = Organic Content	Sample ple ple par Test mpressive Strength of Ib. hammer percent ti, percent		
Teny Ruwch C. Marrelini nish: Bar 199 ion: Hrea Y n': Sample Informati ample No.	Recovery on	Auger IE Sampler Hammer Water Le	U=Thm Wall Tube Reck Core Sam Y= Institute Are the second of the second	Sample ple ple par Test mpressive Strength of Ib. hammer percent ti, percent		
inish: 871 09 ion: Area 4 n': Sample Informati ample No.	Recovery	Sampler Hammer Water Lo	E Dan Chap man  Wt./Fall: NA  Wt./Fall: NA  evel3: 9' Meusued in borehold  7'865 based on 501 observation  Corganic Content  oc = Organic Content	ear Test mpressive Strength I ib. hammer s percent ut, percen		
nish: \$\frac{1}{2}\cdot \frac{9}{2}\cdot	Recovery	Hammer Water Lo	Wt./Fall: NA  evel 3: 9 Meusuel in borolish  7'BCS based on Soil observation  oe = Organic Content	lb. hammer s , percent u, percen		
ion:   Grea 4 n1: Sample Informati ample No.	Recovery	Water Lo	evel3: 9' mensued in borehold we = Water Content 7'865 based on 501 observation e = Organic Content  Organic Content	s , percent ut, percen	tical	
n': Sample Informati ample No.	Recovery		7'BCS based on 501 observation e = Organic Content  oc = Organic Content	, percent	tical	
Sample Informati ample No.	Recovery	ime			tical	
ample No.	Recovery	ime	Sample Description and Classification	ied sification	tical	
437-0/1.0-XXX	201	<b>—</b>		Unified Classif	Analytical Collected (Y/N)	; i
437-0/1.0-**	) 4-7	1005	0-0.6 Coverete 91021	2		
		1230	0-1.5 Park oling brown to durk houry fite to mediun said with a little coarse surland quel. =1. Moist,	.7	Y	
			sunt with traces of course sund =1			
				6. 20		
			- 3 1) 1000 17 18 00 WELLOW SCHOOL PROTEST WAS THE	שלב ושאטוא		
		1	13-3.4 Very door brown time to welly sand;			
		<b>†</b>	-3.4-5 Brown do yellowish brown trie to median =1.	0 50		
2 = 12	410	12 7.2	Constant			_
A5-10	7.0	1000	13-1 Olyman to yellowish is now a time to mething fill	215		
		<del>- </del>	- Juna. Very moist, some wallstruct layering, vintors	75		
		60.15	7-10 Brown to light brown threto median soul:	-1.1	Iv. I	
<u>-437-5/7-x</u>	X.X	1240	with some thin (\$1-0.0) luyers of fretocourse		1 pe	
		1	sevel with shight yellowish color.			
			West, relutifily un Formanin size. No =	1.2		
		L				
			A A M. M. A. O. M. A. O. M. A. M.	50		
			]		1 1	
		1		1.0		
+3 112-15	4.6	1240	10-12 Brown to little to prove fine of any liver carel are	15		
-1017	110	100	with a torce of coace sent i Net.	"	1	
				1.1		
			with a little course said and grand was with	.,	1 1	
		<b> </b>	occosion yellowish colored luger.	1,2		_
		<del> </del>	14-15 brown to dive brown the to course said	Call	192	
		ļ	and gravel. Wet massive	2 (9)	%), I	
			7	·2  ac	φw	
		1	•	1		
			- 21			
	25-10 -437-5/7-2	437-5/7-222	437-5/7-XXX 1240	2-3 Brown five to median sand. Moist massure in 3-3,4 Very dark brown fine to median scient.  3-3,4 Very dark brown fine to median -/  3-4-5 Brown to yellowish brown five to median -/  25-10 4.0 1230 5-7 Brown to yellowish brown fire to median fill 5 and. Very moist, some whist fact layery. Unito 1:  7-10 Brown to light brown fine to median soul.  437-5/7-xxx 1240 2-10 Brown to light brown fine to median soul.  Wet, relatively uniform grain 5/22. 10 =  Unusual abors de tected.  210-15 4.6 1240 10-12 Brown to light brown fine to median sand pip:  with a torce of coarse sund. Wet.  12-14 Brown to light brown fine to median sand pip:  uith a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel. Wet with a little clarge send and granel.	2-3 Brown fine to median sand. Moist massure inition sp  2-3.4 Very dark brown fine to median sand.  3.4-5 Brown to yellowish brown fine to median fip: 1.0 sp  2-10 4.0 1230 5-7 Brown to yellowish brown fire to median fip: 1.5  5 and. Very moist, some inclistract layering. Unito in sp  7-10 Brown to light brown fine to median said =1.1  uith your thin (1.1-0.5-) Layers of fine to couse  sevel with a fight brown form quain size. No =1.2  unusual whore detected.  2-1.0  10-15 4.6 1240 10-12 Brown to light brown fine to median said pip: 1.5  with a torce of coarse said. West.  12-14 Brown to light brown fine to median said =1.1  uith A lifts of sure said and grand. West with	2-3 Brown five to median scund. Moist massive inform 50  2-34 Verydock brown five to median scund.  3.4-5 Brown to yellowish brown five to median = 1.0 Sp  2-5-10 4.0 1230 5-7 Brown to yellowish brown fire to median five 15 and. Very moist, some inclistract layens, but of an 5p  7-10 Brown to light brown fire to median scul = 1.1  437-5/7-44x 1240  12-10 Brown to light brown fire to median scul = 1.1  12-15 Grown to light brown fire to median scul = 1.2  12-14 Brown to light brown fire to median scul = 1.1  12-14 Brown to light brown fire to median scul = 1.1  12-14 Brown to light brown fire to median scul = 1.1  12-15 Brown to light brown fire to median scul = 1.1  12-15 Brown to light brown fire to median scurl = 1.1  12-15 Brown to light brown fire to median scurl = 1.1  12-15 Brown to light brown fire to median scurl = 1.1  12-15 Brown to light brown fire to median scurl = 1.1  12-15 Brown to light brown fire to median scurl = 1.1  12-15 Brown to light brown fire to coarse swel County  12-15 Brown to dive brown fire to coarse swel County

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, Wil. Client: Olin	Boring: 5B-4 <b>3</b> 7 File No.:
Cont	tractor: Boarthoney	PIN	Drilling N	Method: Rotosomic	Definitions:
Ope	rator: Dale Dischel		Bore Hol		S = Split Spoon Sample U = Thin Wall Tube Sample
	ged By: Jen Raw	Seffe		IOD: NA	R = Rock Core Sample
	cked By: C. Mazzol:			Dave Cleronar	V = Insitu Vane Shear Test
	Start/Finish: 8 21 09			Wt./ Fall: NA	q <sub>p</sub> = Unconfined CompressiveStrength (psf) weh = weight of 140 lb. hammer
				vel3: 9 areas wed in bonn	wer = weight of rods we = Water Content, percent
	ng Location: Hyeu 4		I Water Le	7' bused on Sol Observation	oc = Organic Content, percent
IXEI.				1 baselibil 381 100 salvations	
	Sample Informat	ion			
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification Analytical Collected (Y/N) Elevation
15	RUN #4 15-20	4.1	1250	15-17 Brown to old brown fine to coard scend and gravel and troces of small coldeles 17-19 Olice brown fine sandwith some sile a little medium sand med travers of coard	7/3004
20	Run # 5 20-25	4.5	(300	Sand and growed along coarses grammed by West. 19-20 Brown to dive brown graveler of he 40 Coarse sund and a little fire sand of No unversal orders of staining despress	es. =1.5ppm duin = 1.1pp GW
**	bc-48-437-21/2		13/0	20-21.5 Brown to olive birown fire to coas seems aid gravel wet, mussie. 21.5-23 Brown to due to olive brown five to sound and grown with some to alith site.	e P10=1.6ppm occase Guy Yes
-	00 38 437-2172		7370	Massins	
-		/X\	XV	+3.23.7 Ohve to olive your Rive to medien with pitt, goverl, coarse send and druses o cobbbs.	£ =1.2 ppm
				23,5-25 Encoursed had materil- Colh equal in very light gruy polyerized rod	a. =1.5 pom
				(roch thours Great andien-coarse grand who	and)
		<u> </u>		Estimate top of bedrocked 23,50	2/25
ı				Estimate 40 p of seat seat of one	
				Bottom of borning = 25 B65.	
		<u> </u>	1	1	
1				1	
		<b></b>	<del> </del>		
Note	200		1		
1400	<del></del>				
Strat	itication lines represent approximate ander conditions stated. Fluctuations	groundwater	veen soil types may occur du	, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page 2.F2 Boring: SB-437

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wtlmigrou, MA	438			
				Client: Oliv	File No.:			
Cont	ractor: Boarthone	ia out	Drilling A	Method: Roto Spric.	Definitions:			
Oper	rator: Note Dusch			e ID/OD: 47/8 /62	S = Split Spoon Sample U = Thin Wall Tube Sample			
Logo	ged Bywerry Runch	the	Auger ID	IOD: NA	R = Rock Core Sample			
Chec	ked By: Crm		Sampler:	Vare Cheprins	V = Insitu Vane Shear Test q <sub>b</sub> = Unconfined Compressiv	eStrength (	psf)	
Date	Start/Finish: 8/24/8	9		Wt/ Fall: NA	weh = weight of 140 lb. ham wer = weight of rods			
Bori	ng Location: Area 4		Water Le	vel3: 9.5' mensured in crease	we = Water Content, percent			
Ref.	Elevation <sup>1</sup> :		7-81	Busedon soils.	ac = Organic Content, perce	n	·	
	Sample Informati	ion						
						Unified Classification		
ı		2		Sample Description and Classification		_ ica	cal	E O
l s		8	6	Sample Description and Glassification		fied	lect	/ati
Depth	Sample No.	Recovery	Time			Unified	Analytical Collected (Y/N)	Elevation
"	Rusth 0-5	3.4	1640	0-0:5 Concrete	110= 1:	_	300	ш
		36 L	1645	0-0.5 Coursele 0-1.5 Brown Fine to media said with a 5 and sond grovel. Woistymassia	148 - 48 6	M	Yes	
	JO-317 - 178 - V/10- X	~~	1.01/	Sand and grown Marie Tours	u ro wase	50	100	
				1.5-2 Brank light brown fireto medun 50	ml. =52			
			<b></b>	motst.				
			<del>                                     </del>	2-2.5 Very dork to rown to black fine to a	a day i			
				soud with a true of sily. No voused o	echin = 46	SP		
						SP		
1				2.5-5.0 Brown fine to and unthe	a upositi			
5				Moist musser	=44		No. add.	
	But 2 5-10	4.9	1645	5-7 Brown fine to wednessand with trace	A PID= 32			
				of course said and sit. Vary moist, some orange (was) string with a thick layered of at bottom of indepal (0.4-7').		SP		
				orange (wow) string with a fluch hours	TEGORAL .	المرد		
	OC-53-438-5/7-X	W	1650	at bottom of internal (0.5-7').	= 25		4-5	
				7-8.2 Light brown to brownish gray Fine to w	deen sand			
Г				with traces of coarse soul, Wet,	=17			
				8.2-10 Brun firetour lun soul with one	atrones	_		
				8.2-10 Bown firstoynedum sand with vorce sund gloun some luyer. Slight reddish luyer w/2/8/2-8.3'). West, quite vin favor	12wel = 25	50		
			ļ	loges w(x(8:2-8.3). West, quite uniform	grace size			
10			ļ	No vivarel odors dottata.	281	1		
	Runt 3 10-15	4.4	1650	10-12.8 Owegry to brown finetom	duly PID-25	16 <b>6</b> 0		
1			ļ	sandard greet with some wishers and of coorse such and site. Wet, wassi	lomes "	ή .		
			ļ	Nounceal odors	= 15			
			ļ			100		
<u></u>				12.8-15 Olive to olive brown fine to co	ase sau	GU	n	
1			<del> </del>	with some grown and silt. Wer, mass	we. = 15	1		
1								
1					=31			
1:0			<del> </del>	*	=43		-	
Note	25				,	1974		
1.400	- Dock lunes 2-2.5	owner	to w	when organics but no recommended debr	3 such to	uys	Lea	
1	dilla di	alis a		userlad and date sted-		0		
1	sign staining of	Jones		- Janes Cort J. Confeder N.				
1								
1								
				transitions may be gradual. Water level readings have been made at times	Page Page	100	2	
and	inder conditions stated. Place abons	o: groungwater	may occur du	e to other factors than those present at the time measurements were made.	•			
1 /	Jerry (Caulf)				Boring: S B	- 4	38	
1	10 1/1/					<u> </u>		
,	10							

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, M.  Client: Olin	Boring: So	1-438			
Oper Logg Chec Date Borir	ractor: Spart house ator: Dule Over House led By: Terry Rau ked By: CTM Start/Finish: 8/34/16 ng Location: Aren 4 Elevation':	elike va	Bore Hol Auger ID Sampler: Hammer Water Le	Method: Roto Spric. e ID/OD: 47/62/62  /OD: NA  Dave Charmery Wt./ Fall: MA  vel3: 9.5 Measur in casing  Based on Soils	Definitions:  = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Stear Test q <sub>0</sub> = Unconfined Compressive Strength (psf) weh = weight of 140 lb. hammer wer= weight of rods we = Water Content, percent oe = Organic Content, percent				
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)	Elevation		
13	Ruatt-4 15-20	<u> </u>	1700	15-19 Oliverolin brown freto course of with some grand and sitt. Wet, massing the 17 olive to olive brown fine to course of grand with cololles and someto alith sitt 17-18:5 Grand out publicated cololley roch under ruce of grand size.  18:5-00 Olive to olive brown fine to course and grand with a little site. Moisture and grand with a little site. Moisture	Soud = 37 Floor. Ory,	Su/GW			
ð	Ru#5 20-22,5 OC-5B-438-20/02-X	2.5 M	1715	20-21.5 Oline to duck o live brown fine to coarse sund culgravel with cold wet, massie. Slight "wetallie" of 215-22.5 Cobbles, grown, Live to coarse and proverized rach (rock flow) Work.  Encountered likely top of westlessed work as	10: 4:5 bes. 10 = 6.2 5 = 30	GW GW Yes			
25				Bothom of horny = 22,5'B65.					
Note	<u>es</u>								
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page 2 of Boring: SB	-438			



**SB-438** Boring:

File No.:

**Definitions:** 

Operator: Dale Duscher		S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By: Jerry Rawcliffe		R = Rock Core Sample V = Insitu Vane Shear Test
Checked By: CTM		q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer
Date Start/Finish: 8/24/2009		wor = weight of rods wc = Water Content, percent
Boring Location: Area 4	Water Level: 9.5' bgs measured in casing	oc = Organic Content, percent

Water Level: 9.5' bgs measured in casing oc = Organic Content, percent

Ref. Elevation: 7 - 8' bgs based on soils

	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-438-0/1.0-XXX	3.9	1640 1645	0-0.5' Concrete 0-1.5' Brown fine to medium sand with a little coarse sand and gravel. Moist, massive.  1.5-2' Brown to light brown fine to medium sand. Moist.	48 52	SP	YES	
5				2-2.5' Very dark brown to black fine to medium sand with a trace of silt. No unusual odors.  2.5-5' Brown fine to medium sand with a little silt. Moist,	46 44	SP		
	Run #2 5 - 10 OC-SB-438-5/7-XXX	4.9	1645	5-7' Brown fine to medium sand with traces of coarse sand and silt. Very moist, some reddish/orange (iron?) staining with a thick layer of staining at bottom of interval (6.9-7').  7-8.2' Light brown to brownish gray fine to medium sand with traces of coarse sand. Wet.	33 25	SP	YES	
10				8.2-10' Brown fine to medium sand with traces of coarse sand along some layers. Slight reddish stained layer at (~8.2-8.3'). Wet, quite uniform grain size. No unusual odors detected.	17 25 31	SP		
	Run #3 10 - 15	4.4	1650	10-12.8' Olive gray to brown fine to medium sand and gravel with some cobbles and traces of coarse sand. Wet, massive. No unusual odors.	25 15	GW		
15				12.8-15' Olive to olive brown fine to coarse sand with some gravel and silt. Wet, massive.	28 31 43	GW/G	M	

## **Notes**

Dark layer 2-2.5' bgs appears to contain organics but no recognizable debris such as twigs or leaves. Slight staining of gloves, no unusual odors detected.

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**SB-438 Boring:** 

Jeny 7. Rawlffg

Contractor: Boart Longyear Operator: Dale Duscher Logged By: Jerry Rawcliffe Checked By: CTM Date Start/Finish: 8/24/2009 Boring Location: Area 4	Drill Bore Cas Sam Ham	npler: Dave Chapı nmer Wt./ Fall: NA	OD OD inner casing/6" OD outer casing man	Boring: File No.:  Definitions: S = Split Spoon Sam U = Thin Wall Tube R = Rock Core Sam V = Insin Wall of 140 won = weight of 140 wor = weight of rods we = Water Content, co = Organic Conten	Sample ole ear Test impressive olb. hamn s percent	Strength (	8-438	
Ref. Elevation:	11140		ased on soils	Conten	, L. Jent			
Sample Information  Page 19 19 19 19 19 19 19 19 19 19 19 19 19	very	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
20 Run #5 20 - 22.5 OC-SB-438-20/22-XXX	2.5 17	700 15-16' Ol gravel and 16-17' Ol with cobb. 17-18.5' Opulverized 18.5-20' C with a littl 715 20-21.5' Ogravel with 21.5-22.5' Orock (rock Encountered Encountered 18.5-20.5' Orock (rock 19.5-22.5') Opulverized 18.5-20' C with a littl 715 20-21.5' Opulverized 19.5-22.5' Opul	ive to olive brown fine to coarse sand with some I silt. Wet, massive.  ive to olive brown fine to coarse sand and gravel les and some to a little silt. Moist, massive.  Gray to light gray fine to coarse sand and gravel a cobbles/rock flour. Wide range of grain size.  Dlive to olive brown fine to coarse sand and gravel e silt. Moist, massive.  Dlive to dark olive brown fine to coarse sand and a little silt. Wet, massive. Slight "metallic" ode a little silt. Wet, massive. Slight "metallic" ode Cobbles, gravel, fine to coarse sand and pulveriz flour). Moist.  Ed likely top of weathered rock at 21.0' bgs. from 21.5-22.5' bgs	and el or.	42 37 49 28 41 4.5 6.2 18 36	SW/GV GW GW		
25		Bottom of	boring = 22.5' bgs.					
			be gradual. Water level readings have been made at times than those present at the time measurements were made.	Jerry / Page 2 Boring:	7 < . 2 of 2	2		

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington WW Client: Olin	Boring: 5B-439 File No.:				
Cont	ractor: Boathongy	eve	Drilling N	Method: Rotosonic	Definitions:				
	ator: Dule Ouscher	-		e ID/OD: harrisin 47/800/Outer casin 6200	S = Split Spoon Sample U = Thin Wall Tube Sample				
	jed By: Terry Rawc	litte	Auger ID		R = Rock Core Sample				
Chec	ked By: CTM		Sampler	Dave Chapmen	V = Insitu Vane Shear Test q <sub>a</sub> = Unconfined Compressiv	eStrength (	ps()		
Date	Start/Finish: 8 24 04		Hammer	Wt./ Fall: NA	weh = weight of 140 lb. ham		,,		
Borii	ng Location: Area 4		Water Le	vel3: 9,3 nouseury in horelest w curica	wer = weight of rods we = Water Content, percent				
	Elevation1:				ec = Organic Content, percer	T.			
	Sample Informati	on							
					•	Ę			
		_				atic	= -	_	
		Recoven		Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
pt		ó	9			Unified	S = a	vaí	
Depth	Sample No.	æ	Time			5 등	Analy Colle	ᆲ	
	Runtl	4.4	0940	0-0.5 Dark brown to clark reddish bro	U= 119=0				
	DL-58-434-0/1.0-X	d	0945		_ / / / /	405			
		-		and trees of grandfulsile some concre	tetingues 3	,-	1		
				and trues of grand with a little coales	=0				
			1	10 5 3 5 DONK A TOWN ON THE LAND OF	0.4				
			<b>†</b>	medium sign with thes of silr. Mois	of frances	SP	-		
				muist sight luyered appearance. Um Form	MANUE STOP	1			
	. 1			25-50 Brown to darkly rown finetom	o diam.				
				sent moist	20				
5				3555 557 000 0(3)	20				
<u> </u>	Run#2 5-10	5.0	FG. Ima	E-1.0 As 1 1 1 1					
	KUNDY 3-10	3.0	0945	5-6 Brown Fine to weden send . Very moi	3F PIB=1.0	SP			
				slight (uneved appearence , some orange a	dored (100m)				
			<u> </u>	GTALMAY.					
				6-8,5 Similar to above but light brown. light groups la brown very most to wet.	to		1		
_									
				8.5-10 Brun to light brown fireto we	elseur =0	50			
				sand with trees of coursesand in some	ceres//www				
	OC-5B-439-8/10-X	4	0950	Very moist toward.	=0	i .			
				at a had					
10				No inviscal also detected.		-			
	Runt 3 10-15	4.9	0955	10-11 Simlarto 8,5-10 (unifor grains	20). PID=0	50			
				11-12.2 Brown toolike brown fine to nedu	seed	100			
			<u> </u>	with any on when a little cooke Seend 1)	20.2		1	7	
			_	moist to west					
				12.2-12.5 Light velouis brown Lives come	and and				
				moist to west 12.2-12.5 high yellowich brown fix to coars grand lupes. 12.5-15 Olive bount o olive fine to coarse so grand with some to alith site and traces of Very moist, massarl, wide ruye of gran siz	, 20				
				2.5-15 die bounto oline time to coarse se	ref and	10.0			
				gravel with some to alith site and traces of	collets. =	OU/GI	4		
				New moist, massarl, wide sure of aroun siz	J - 0.1		9		
15					= 0				
Note	es					-			
r	14-P6								
		5.01							
Strati	(Ation lines represent Androximate b	ofingaties bety	een soil types	transitions may be gradual. Water level readings have been made at times	Page / of	2 1			
				e to other factors than those present at the time measurements were made.	1 age 1 0T	9	•		
	Variable 1	1111			5.4		>1		
	July Rull	YVII			Boring: SE	3-45	9		
1	10	117							
1	/ /	V							
	/								

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, WA  Client: Olin	Boring: <i>SB</i> -File No.:				
Ope Log Che Date Bori	ractor: Board honour rator: Date Duschel ged By: Jenny Rawd cked By: CTM Start/Finish: 8 24 09 ng Location: Aren 4 Elevation':	iffe	Auger ID Sampler: Hammer	e ID/OD: 476" invercoin 00/6" orger cusing 00. OD: NA Oave Chapman	Definitions:  S = Split Spoon Sample U = Thin Woll Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined CompressiveStrength (paf) web = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent ee = Organic Content, percent				
Depth	Sample Informati	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)	Elevation		
35	Sample No.  Results Y 15-20	4.6	1000	15.17 Olive to olive bown fire to course Sunt and qual with a little sitt. West, massive, wide renge of guin size 17-18 from to liftyellowish lovows for to come sunt with traces of sets and coa	910=0,2 ie = 0.7	54/60 Sp	Ш		
	OL-5B-439-1418-XX		/340	Very mast to wet. 18-20 Gry to die gry grund with son Inetocoarse sond and cot bles with to sitt. Moist today massup	PI 0=4.3	GW	garage to the control of the state of		
20	Run#5 20-24	3.1	1025	fire to coarse sul and grand with site a some cotales, Wet, mussue.  32-24 Very light gry grand and cotales so rock Requests in voch flors.	7 P10=0.7 red >1.4	ayom			
25				Bottom of borny = 24'B65.					
Not	<u>es</u>								
Stra	diffication lines represent approximate bunder conditions stated. Fluctuations of Carlot Carl	oundaries betw of groundwater	reen soil types may occur du	, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page 2 o F Boring: 58-	2-434			



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.: **SB-439** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Dale Duscher Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe

Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 8/24/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 4** Water Level: 9.3' bgs measured in borehole w/casing

Ref. Elevation:

**Definitions:** 

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-439-0/1.0-XXX	4.4	940 945	0-0.5' Dark brown to dark reddish brown fine to medium sand with a little coarse sand and traces of gravel and silt. Some concrete fragments and a piece of lead pipe Moist, massive.	0		YES	
				0.5-2.8' Dark brown to very dark brown fine to medium sand with traces of silt. Moist to very moist, slight layered appearance. Uniform grain size.	0	SP		
5				2.8-5' Brown to dark brown fine to medium sand . Moist.	0			
	Run #2 5 - 10	5.0	945	<ul><li>5-6' Brown fine to medium sand. Very moist, slight layered appearance, some orange colored (iron) staining.</li><li>6-8.5' Similar to above but light brown to light grayish brown . Very moist to wet.</li></ul>	0.1	SP		
10	OC-SB-439-8/10-XXX		950	8.5-10' Brown to light brown fine to medium sand with traces of coarse sand in some areas/layers. Very moist to wet.  No unusual odors detected.	0 0.2	SP	YES	
10	Run #3 10 - 15	4.9	955	10-11' Similar to 8.5-10' (uniform grain size)  11-12.2' Brown to olive brown fine to medium sand with some gravel and a little coarse sand. Very moist to wet.	0 0.2	SP		
15 <b>Not</b> e				12.5-15' Olive brown to olive fine to coarse sand and gravel with some to a little silt and traces of cobbles. Very moist, massive, wide range of grain sizes.	0 0.1	GW/G	M	

<u>Notes</u>

A4-P6

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

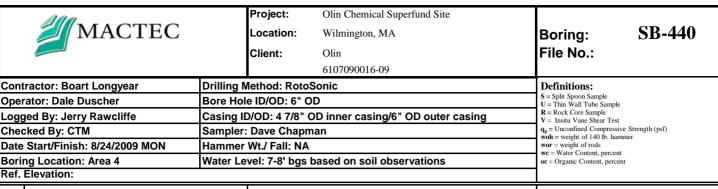
**Boring:** 

**SB-439** 

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin 6107090016-09  Boring: S  File No.:					
_			1						_
	tractor: Boart Longyear			Method: RotoSonic	Definitions: S = Split Spoon San	mle			
	rator: Dale Duscher			e ID/OD: 6" OD	U = Thin Wall Tube	Sample			
	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sam V = Insitu Vane Sh				
Che	cked By: CTM		Sampler:	Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 14			psf)	
Date	Start/Finish: 8/24/2009		Hammer	Wt./ Fall: NA	wor = weight of rod	s	ici		
Bori	ng Location: Area 4		Water Le	vel: 9.3' bgs measured in borehole w/casing	wc = Water Content oc = Organic Content				
	Elevation:				1	•			
					1				
	Sample Informati	tion	1		1				1
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.6	1000						
	OC-SB-439-16/18-XXX		1040	15-17' Olive to olive brown fine to coarse sand and grav with a little silt. Wet, massive, wide range of grain size.  17-18' Brown to light yellowish brown fine to medium satisfactors.		0.2 0.7 4.3	SW/G SP	w       YES	
20				with traces of silt and coarse sand. Very moist to wet.  18-20' Gray to Olive gray gravel with some fine to coarse sand and cobbles with traces of silt. Moist to dry, massive		2.6	GW		
	Run #5 20 - 24	3.1	1025	20-22' Very light olive to light olive gray fine to coarse sar and gravel with silt and some cobbles. Wet, massive.	nd	0.7	GW/0	GM	
		ППП	ППП	22-24' Very light gray gravel and cobble sized rock fragme in rock flour.	ents	1.4		Ш	
				Started encountering weathered boulders or bedrock at 19.5 20' bgs.					
25				Rock became firm at $\sim$ 22' - Top of hard bedrock at 22' bgs. Bottom of boring = 24' bgs.					
25									
		1	1						
<u> </u>			<u> </u>						
<u>Not</u>	<u> </u>				Jeny 7<	). K	) aw	ffe	/
				s, transitions may be gradual. Water level readings have been made at times ue to other factors than those present at the time measurements were made.	Page	2 of 2	2		
					Boring:		SI	3-439	

	MACT			Project: Olin Chemical Superfund Site Location: Wilmington V Client: Olin	Boring: 58-440 File No.:				
Oper Logg Chec Date Borin	ractor: Boot house rator: Duke Duckel ged By: Jerry Rouse sked By: CTM Start/Finish: 854/09 ng Location: Area 4 Elevation <sup>1</sup> :	diffe	Bore Hol Auger ID Sampler: Hammer		Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R ≈ Rock Core Sample V = Insitu Vane Shear Test q = Unconfined Compressive Strength (psf) weh = weight of 140 lb. hammer wer = weight of rods w = Weater Content, percent oc = Organic Content, percen				
	Sample Informat	ion				-		- 7	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
	Runti oc-sb-440-0/1.0-x	4.5	1135	0-0.5 Darkiswum to bruse für sund au sitt with some to ale the medin soc sorre ant growl. Wet to way disist; not filers (7 0.5-2.7 Brum fine to markin sand an course sundant growl. Dry to most,	opsoil) =0	54/50			
,				moderly with reyes f gruns re. (Price) 2.7-5.0 Brown todash brown fine to a sculvish a life growland courses	veduin 20 usl. Moist	430			
5	RUN \$2 5-10	2.9	1140	to very moist black smel size fraguents that to be old as pheats.  5-6:5 Brown to clark brown five to medicath some grant and a life to traces of and site. Moist, masso.  6:5-8 Brown to light brown fine to wedie	D. 14	50/5W	J		
10	OCSA-442- Ye-XA	X.	1150	Sund in the some rost teles, and a completed to very dark brown (organics?) fine sundy in 8-10 Brown Price to mediu sund with some stanced (von?) luyers. butto gravel and the course such colobby the roll willy unformance	etarl, P10:00 orcupe	5P			
	Run 193 10-15	4,5	1100	10-11 Brown fixe journedin sand with a for of silt and grand. Very moist 11-13,5 Darkolin gray to dulique to light of fixe to media sudend silventh Cololles and Soul and grand Very poist to day a Doi	my	cu			
15				the the diognation which the soils he could be realings were decided, is 5-15 Brown to vive a run fine to with some coase send and site and a 1,86 to the soil a	stobouch =1.7 medien sna gwel =0.9	16	M		
Note	<u>es</u>			•	1				
				, transitions may be gradual. Water level readings have been made at times a to other factors than those present at the time measurements were made.	Page / o← Boring: S B		10		

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, M.A.  Client: Olin	Boring: $5B-440$ File No.:				
Cont	tractor: Boarthangle		Drilling N	lethod: Rote Sonic.	Definitions:				
One	rator: Pale Dusch	-	Bore Hol	11-11	S = Split Spoon Sample				
			Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample				
	ged By: Jerry Rawa	urv.			V = Insitu Vane Shear Test				
Chec	cked By: CTm			ier: Dave Chapters q. = Unconfined					
	Start/Finish: 8 24 09		Hammer		weh = weight of 140 lb. ham wer = weight of rods	mer			
	ng Location: Area 4		Water Le	vel3: 7-8' Bused on soil observations	we = Water Content, percent				
Ref.	Elevation¹:				oc = Organic Content, percer	n:			
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification Analytical	Collected (Y/N)	Elevation		
15	Run #4 15-20	4.4	1200	15-17,51 Olive to olive bown the to course	P1020.4	-			
	104.7 7 73 70			Sand and gowel with three of site and col Very moist, massur. 17.5-18.5 Yellowish diretory fire to coure and grand with life to twee of site and	e sund	GW			
20	0 4 2 2	4.5		Very moist. 18:5-20 Oliveto olme gray fine to course and grandwith colobles land a little sill Very moist, masser, Paint " ne Hallic" odor.	smd = 1.4 to = 25.5	GW			
	Run #5 20-25	7.7	/230	20-12 Oline to oline brown dife to coarse some and grown with a latte 5/4 and to wet, massing oline brown fine to coarse so and some some self and grown and tracks of we brown much and tracks of we brown much some solowed much and tracks of we bey nocot town much much much and tracks of we bey nocot town much much much much much much much much	=1.8	6.0			
مورد	0C-SB-440-22/25-2	Chris	1230	24.5-25 hight borun to light oline bown to coarsesond and government a little sile cookeles. Moist, mason.	n fine = 8.6 and = 7.4	GM			
	Runt 6 25-27	2.4	1230	35-26 higher olive brown dolifer olm gor fire to coarse send and grand with cold	y PID=0.6 Loanda	Gul			
	/ X \ /			25-26 higher olive brown dolifer olar gar freedo coarse send and aprovide with cold lible silt. Very moist to wel, massab. 26-27 hight gry grawlard abble sized. fragments in provenized rock floor. Estimated to potrock = 26 BGS	rock = 0.9	GN			
				Estimated to potroch = 26'365					
			·	Buttom of borny = 07 BGS.					
Note	es								
Strat and	iffication lines represent approximate			transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page Joh	2-440	)		



	Sample Information							
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.5	1135	0-0.5' Dark brown to brown fine sand and silt with some to a				
	OC-SB-440-0/1.0-XXX		1140	little medium to coarse sand and gravel. Wet to very moist,	1.7		YES	
				root fibers (Topsoil).				
				0.5-2.7' Brown fine to medium sand with some coarse sand and gravel. Dry to moist, massive. Moderately wide range	0.2	SP/SW	7	
				of grain sizes. (Fill)	0	5P/5W	,	
				No unusual odors detected.				
				2.7-5' Brown to dark brown fine to medium sand with a little gravel and coarse sand. Moist to very moist, black gravel	0			
				sized fragments that appear to be old asphalt				
5					0			
	Run #2 5 - 10	2.9	1140	5-6.5' Brown to dark brown fine to medium sand with some				
				gravel and a little to traces of coarse sand and silt. Moist, massive.  6.5-8' Brown to light brown fine to medium sand with some	1	SP/SW	7	
					0	3F/3 W		
				root fibers and a couple thin layers of very dark brown (organics?) fine sandy material.				
				(organics?) time sandy material.	0			
	OC-SB-440-6/8-XXX		1140	8-10' Brown fine to medium sand with some orange stained			YES	
				(iron?) layers, little gravel and traces of coarse sand and cobbles. Wet, relatively uniform grain size	0	SP		
10				No unusual odors detected.	0			
10	Run #3 10 - 15	4.5	1150	10.111 Duoyum fine to meediyum cond. with a tugaa of -11t - 11	0	$\dashv$		
				10-11' Brown fine to medium sand with a trace of silt and gravel. Very moist.	0.4			
				11-13.5' Dark olive gray to dark gray to light gray fine to				
				medium sand and silt with cobbles and coarse sand and	6.2			
				gravel. Very moist to dry. Drilling through this area with cobbles makes the soils hot to the touch and PID readings were elevated.  13.5-15' Brown to olive brown fine to medium sand with some coarse sand and silt and a little gravel and traces of cobbles. Very moist, massive.		GW/G	M	
			-		1.7			
					1./			
					0.9			
15								

**Notes** 

Jeny 7. Rawlffe

Page

Boring: SB-440

1 of 2

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

					1				
	1111-			Project: Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location: Wilmington, MA	Boring:		SI	<b>B-440</b>	
				Client: Olin	File No.:				
				6107090016-09					
Con	tractor: Boart Longyear		Drilling N	Method: RotoSonic	Definitions:				
_	rator: Dale Duscher		1	e ID/OD: 6" OD	S = Split Spoon San				
<u> </u>	ged By: Jerry Rawcliffe		_	D/OD: 4 7/8" OD inner casing/6" OD outer casing	U = Thin Wall Tube  R = Rock Core Sam	ple			
	cked By: CTM			Dave Chapman	V = Insitu Vane Sh $q_p = Unconfined Co$	mpressive		(psf)	
	e Start/Finish: 8/24/2009 N	ION		Wt./ Fall: NA	woh = weight of 14 wor = weight of rod	ls	ner		
Bori	ing Location: Area 4		Water Le	vel: 7-8' bgs based on soil observations	wc = Water Content oc = Organic Content		1		
Ref.	Elevation:								
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.4	1200						
			<u> </u>	15-17.5' Olive to olive brown fine to coarse sand and gra	ivel	0.4			
				with traces of silt and cobbles. Very moist, massive.			GW		
				17.5-18.5' Yellowish olive brown fine to coarse sand and		0.7			
			1	gravel with traces of silt and cobbles. Very moist.		2.0		MEG	
						2.8		YES	
			+	18.5-20' Olive to olive gray fine to coarse sand and gravel	ı	1.4	GW/0	I CM	
				with cobbles and a little silt. Very moist, massive. Faint	L	1.4	G W/C	JIVI	
20			+	"metallic" odor.		5.5			
20	Run #5 20 - 25	4.5	1220	20-22' Olive to olive brown fine to coarse sand and grave with a little silt and traces of cobbles. Wet, massive.	1	2.8			
				22-24.5' Light olive brown fine to coarse sand with some s		1.8			
				and gravel and traces of cobbles. Very moist to wet, mass:	ive.		GW/0	GM	
				24'.5-25' Light brown to light olive brown fine to coarse sa and gravel with a little silt and cobbles. Moist, massive.	and	5.4			
	OC-SB-440-23/25-XXX		1230			8.6		YES	
25			<u> </u>			7.4		<u> </u>	
	Run #6 25 - 27	2.4	1230			0.5	CHAN		
				25-26' Light olive brown to light olive gray fine to coarse		0.6	GW/0	jΜ	
			11111	sand and gravel with cobbles and a little silt. Very moist to wet, massive.	,		1111		
			1	,		0.9			
			+	26 -27' Light gray gravel and cobble sized rock fragments i	n				
			1	pulverized rock flour.					
			1	Estimated top of rock = 26' bgs					
			1						
L				Bottom of boring = 27' bgs					
<u>Not</u>	<u>es</u>				Jeny	- 7<.	Ro	welf	1

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**SB-440** 

Page

Boring:

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Client:	Boring: 58 - 44/ File No.:				
Cont	ractor: Boarthongy	ex	Drilling N		Definitions:				
Oper	ator: Dale Orschef	4	Bore Hol	e ID/OD: 4 % inner cuesa OD/6 outercasin OD.	S = Split Spoon Sample U = Thin Wall Tube Sample				
Logg	jed By: Jerry Ruwch	te	Auger ID	10D: NA	R = Rock Core Sample				
Chec	ked By: CTm		Sampler:	Dave Chapmen	V = Insitu Vane Shear Test q, = Unconfined Compressiv	eStrength (psf)			
Date	Start/Finish: 8/24/00		Hammer	Wt./ Fall: / / /	woh = weight of 140 lb. ham				
Borii	ng Location: Area 4		Water Le	vel3: 7-8'BGS based on soil observations	wer = weight of rods we = Water Content, percent				
	Elevation <sup>1</sup> :				oe = Organic Content, percer	n'			
	Sample Information	on							
ı						<u> </u>			
i		_					_		
		ē		Sample Description and Classification		te di lici	ق		
Ř		Recovery	9	•		Unified Classifi Analyti Collect (Y/N)	Elevation		
Depth	Sample No.	Rec	Time			Unified Classification Analytical Collected (Y/N)	, e		
	RUN#10-5	3.4		0-1.0 Brown to darkbrown fine to mede	us Otia				
i	06-50-441-0/10-24		1450	gund with silt and some coarse sent and go	PIN = 14	SW YES			
	V- 7- 1-10 0/110-301	4	, 13-	Dry to moist, northers new surfue (Top	(انمی	"			
							1 1		
				1-2.4 - highet brown fine to medium soul in		504			
	<del> </del> -			a lible coarse surland ground, Moist, m		SP/Su			
				2.4-3, Dark brown fine sand with a little	wedner = 4.9	10			
3				of organic meterial my darkbrum, moss	yer - "	58	1 1		
				of organic increval way darkbourn, Mosso	0- 10 = 6.2		1 1		
_				3-5 Brown Pote to updin sandwith a 40	U SID				
5				and traces of collects, Normusual odors		36			
	Runty 5-10	5.1	1450	5-6,8 Brown to light brown fine to mechan	Surf P10:33				
	· ,	OR	1455	with some readish organizations sturing. V.	ey moist	SP	1 1		
		9		un Normgemin Size.	יינ ב		1 1		
				6.8-7.7 higher brown to light gray ish brown	Pero Domodens				
				send with a trans of Elle . Were wass to	inot.	SP			
				7.7-10 Brown something school with so	94 = 14				
				7.7-10 Brun sometan sound with so restations are string luyers. There of co	amend		1 1		
				along some lupers. Wet, statisfiel aggs	25	SP	1 1		
	a-58-441-8/10-44		145%	unform gone size, norwenlodes.	eavour		1 1		
10	0C-20 -1-11 - 0\(\text{10}\) [044		100	cultaring grade si sej sie stassant sous.	=48				
-	RUN#3 10-15	4.0	1505	10-13 Darkoline brown to darkoline gu	M PID=20				
	100017 10 17	110	1303			Sell	1 1		
				fire to course sund and gravel with so	me colutes.	SU/GW	1 1		
			ļ	Wet, massive, underruge of grain size.	20				
				12 m linely of wales of Cinata	0. 0. 10	C "A			
<b>—</b>		<del></del>		13-15 higher office brown Fine to coare	2 sure with	/w			
		<del></del>		sur and a work grovel, Wet, massiv	~ 20	1900			
		<del></del>							
Ì			<del> </del>	A 12 7 27 17 12 1					
			<b></b>		20				
15			L						
Note	es						1		
							- 1		
							- 1		
3							- 1		
							- 1		
_									
				transitions may be gradual. Water level readings have been made at times	Page / of	4 a			
angu	muer conditions stated. Prictipions of	yroundwater	may occur due	to other factors than those present at the time measurements were made.					
1	ony conty				Boring: 58	-441			
V	U    )					J + J			

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington; MA  Client: Olin	Boring: 5B File No.:	-44	1	
Oper Ogg Chec	ractor: () an house rator: () ale () resulta ged By: Term Raws cked By: CTM. Start/Finish: 8 2 4/0		Bore Ho Auger ID Sampler	Method: Roto Sanic. le ID/OD: 47/5 invercasing OD/6 ontercasing OD 1/OD: NA 1: Dave Chapman WL/Fall: NA	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  Q = Unconfined Compressi  weh = weight of 140 lb. har	t ive Strength	(psf)	
	ng Location: Area 4 Elevation¹:		Water Le	evel3: 7-8'865 based on soil observations	wer = weight of rods we = Water Content, percer ee = Organic Content, percer			
	Sample Informat	ion				5	I I	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
.5	Rum#4 15-20	4.8	1510	15-17.5 Olive to derkolive brown fine to course sand and gravel with a true of significant of west massare. Dark strued layer bottom of interval (17.5').	to P10=12 bard erat = 9	GW		
	06-50-441-17/14-20	4 ml	1535	17.5-18.3 Brugto slive brown facto co	arse seul	GW	SM.	
	00-55-9-41-1//11-20		75.3.3	Very in orst to wet.  18.3-18.5 highet group to white Free to median s fraud (broken up coloble luyer?). Dry.  18.5-20 Oline to due brown finero modum som with a little cocres cool and growel M.	unday - U	Gun	Yes	
0	Run # 5 20-23	2.5	1530	Estimite top of weathered rock = 20.5'BGS k		refel		
		Λ×	K-)_	Encourseul from roch at 22'865				
				Bottom of borry = 23'B63				
75								
Not	<u>es</u>							
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page & of Boring: 58	<sup>c</sup> 2		
	leng Veelf	1//			Boring: 58	44	<u> </u>	

	MAN			Project:	Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location:	Wilmington, MA	Boring:		SI	3-441	
				Client:	Olin	File No.:		~		
					6107090016-09					
Con	tractor: Boart Longyear		Drilling N	lethod: Roto	Sonic	<b>Definitions:</b>				_
Ope	rator: Dale Duscher			e ID/OD: 6" C		S = Split Spoon Sar U = Thin Wall Tube				
Log	ged By: Jerry Rawcliffe		Casing II	D/OD: 4 7/8" (	R = Rock Core San V = Insitu Vane Sh	nple .				
Che	cked By: CTM		Sampler	er: Dave Chapman			ompressive	Strength (	psf)	
Date	Start/Finish: 8/24/2009		Hammer	Wt./ Fall: NA		woh = weight of 14 wor = weight of roo wc = Water Conten	is	nei		
	ng Location: Area 4		Water Le	vel: 7-8' bgs	based on soil observations	oc = Organic Conte		1		
Ref.	Elevation:									
	Sample Informat	ion								
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.9	1445	0-1.0' Bro	wn to dark brown fine to medium sand with silt					
	OC-SB-441-0/1.0-XXX		1450		coarse sand and gravel. Dry to moist, root fiber		1.7	SW	YES	
					e. (Topsoil).					
					ht brown fine to medium sand with a little coars	e	0.2			
					ravel. Moist, massive. k brown fine sand with a little medium sand an	.1		SP/SV	1	
					m of interval has a layer of organic material ver		0			
				dark brown		. <b>y</b>				
				3-5' Brown	in fine to medium sand with a little silt and traces	of	0	SP		
				cobbles N	lo unusual odors.					
				coooles. 1						
5				coores. 1			0			
5	Run #2 5 - 10	5.1	1450	5-6.8' Brov	wn to light brown fine to medium sand with son		0			
5	Run #2 5 - 10	5.1	1450	5-6.8' Brov	wn to light brown fine to medium sand with son nge (iron) staining. Very moist, uniform grain s		0			

7.7-10' Brown fine to medium sand with some reddish orange stained layers. Wet, stratified appearance, uniform

10-13' Dark olive brown to dark olive gray fine to coarse sand and gravel with some cobbles. Wet, massive, wide

13-15' Light olive brown fine to coarse sand with silt and a

Notes

OC-SB-441-8/10-XXX

Run #3 10 - 15

Jeny 7. Rawlffe

SP

SW/GW

GM/GW

YES

0

0.4

6.2

1.7

0.9

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

grain size.

1455

1505

4.0

No unusual odors.

range of grain sizes.

little gravel. Wet, massive.

Page 1 of 2

Boring: SB-441

	Maa			Project:	Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location:	Wilmington, MA	Boring:		SI	3-441	
				Client:	Olin	File No.:				
				Olient.	6107090016-09	1 110 140				
Cont	tractor: Boart Longyear		Drilling N	lothod: Botos		Definitions:				_
	rator: Dale Duscher			Method: RotoS le ID/OD: 6" O		S = Split Spoon Sa				
	ged By: Jerry Rawcliffe				DD inner casing/6" OD outer casing	U = Thin Wall Tub R = Rock Core Sar	nple			
	cked By: CTM			: Dave Chapm		V = Insitu Vane SI q <sub>p</sub> = Unconfined C		e Strength	(psf)	
	Start/Finish: 8/24/2009			Wt./ Fall: NA	uii	woh = weight of 14 wor = weight of ro	10 lb. hami			
	ng Location: Area 4				pased on soil observations	wc = Water Content oc = Organic Conte		t		
Ref.	Elevation:					1	.,,			
	Sample Informat	ion				<del>1</del>				
	Cumpic informati	1011					T .	_		
Depth					Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
			1				▗▃	ַ בֿ	₹ <u>७</u> ≿	Ш
15	Run #4 15 - 20	4.8	1510		live to dark olive brown fine to coarse sand an		10			
					a trace of silt and cobbles. Wet, massive. Darker at bottom of interval (17.5")		12			
				stained laye	a at bottom of interval (17.5)			GW		
			ļ	17.5-18.3'	Brown to olive brown fine to coarse sand and		9			
	0.0.00			gravel with	some cobbles and a little silt. Very moist, to v	vet.			T/TEG	
	OC-SB-441-17/19-XXX		1535				2	CIVI	YES	
					Light gray to white fine to medium sand and			GW/0	JM I	
					ken up cobble layer?). Dry. live to olive brown fine to medium sand and si	l <del>t</del>	4	CM		
20					coarse sand and gravel. Moist, massive.	ıı	4.0	GM		
20							10			
	Run #5 20 - 23	2.5	1530		of weathered rock = 20.5' bgs.			<del>                                     </del>		
					nsisted of pieces of cobble/bedrock in pulveriz	ed	111	ПП		
				rock flour.	firm rock at 22' bgs.					
					firm rock at $22^{\circ}$ bgs.  oring = 23' bgs					
25										
25								ļ		
				-						
				-						
				-						
				1						
<u> </u>				1						
				-						
Note	<u> </u>								ı	
	<del>-</del>					Jeny.	12.	Rai	whffe	
					e gradual. Water level readings have been made at times an those present at the time measurements were made.		2 of 2		D 445	
						Boring:		Sl	B-441	

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, Mt.  Client: Boring: 58-442  File No.:				
				Chent:	riie No.:			
Cont	tractor: Beart home	a veras	Drilling f	Method: Rons Sanic	Definitions:			
Ope	rator: Grey Halliling	30	Bore Ho	le ID/OD: 6 DO	S = Split Spoon Sample U = Thin Wall Tube Sample		1	
Log	ged By: Teny Rawa	liffe	Augeric	100: 47/800 inner cusing 600 over oasing	R = Rock Core Sample			
Che	cked By: Off		Sampler	: Marc Mancione	V ≈ Insitu Vane Shear Test q = Unconfined Compressi	e Strength	(psi)	
Date	Start/Finish: 83109		Hammer	Wt./ Fall: // /২০ °	woh = weight of 140 lb. han wor = weight of rods	umer		
	ng Location: Ameny		Water Le	evel3: 5,7 Mensused in booked w/cusing	we = Water Content, percent			
Ret.	Elevation':			BOS 6-7 A65 Broth on soils.	oc = Organic Content, perce	4		
	Sample Informati	tion I	1			·		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	C-56-442-0/1.0-	4.2	(M)	10-1.5 Oarh brus to light forum to be to durk reddish to rown, fine to medium; some coarse and and granel, Morest with different whose luyers 0.1-0.5 H	statified o	50	Yes	
5	Run #25-10	4.9	1200		soul =0	1		
				5-8 Brown to light brown fine to med with trace of course send. Very mois of to 9-10- hight brown fine to median son with a trace of site. Wet, stuptife	ed with	SP		
10	oc-sg-442-810-	(LL	1210	No workend odors.	20.4 =0.5 20.4	<i>5</i> ρ	Yos	
	Rut3 10-15	4.0	1210	10-11.5 Brown to light bown fact o made sund grading to the to median send with coarse send and growel. Wast. some some strict headen with growelly layer.	a 1.46 4 = 20.4	50/ /Sw		
15				11.5-15 Brounts olive brown fatetocourse with some excuel gad a little cobbles and moist to well with a couple reddith hours stand avers.	sud =0.5 silt. Very "inou" 20.2	Gω		
Note	s							
				transitions may be gradual. Water level readings have been made at times	Page			*
and u	fdel conditions stated. Flyctuations	of grouphbylater i	nay occur due	to other factors than those present at the time measurements were made.	Boring: 58	2	12	
	U	10						

	MACI			Project: Olin Chemical Superfund  Location: Wilmington,  Client:	Boring: 58-442 File No.:					
Logo Chec Date Bori	tractor: Board how rator: Gray Hambi ged By: Tenny Raw cked By: The Raw Start/Finish: 73100 ng Location: Grany Elevation':	litte	Bore Hol Auger ID Sampler: Hammer Water Le	Method: Ropo Sanic e 10/00: 6°00  OD: 47/800 inner casing/6°00 over casing Marc Massione Wt./ Fall: NA vel3: 8,7'665 mesmod in brochel 7'665 brossed by Jents-	Definitions:  S = Spiti Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressive Strength (psf) web = weight of 140 lb. hammer wer = weight of rods we = Water Content, percent ee = Organic Content, percert					
	Sample Informa			Sample Description and Classification		Unified Classification	rtical cted	tion		
A Depth	Sample No.	3 · l	1250	15-17.5 Olive to dive brown five to	PIN=0.3	Unified Classif	Analytical Collected (Y/N)	Elevation		
				course sound, with some grand a of site. Wet, very distrobed no visible 17.5-20 Olive to Olive brown fine to	Course					
				sand and gravel with topo a le and sit. Wet, massine. Faint ammonia like other.	#4 coblibes 20,2 20.2	Cu	1			
<i>3</i> 0	Runt 5 20-24	4,2	1315	20-23 Objects olive brown Frie tocood sind and grand with a little collected trees of sile Wet, becomes Guir grand a Frint ammonia. Lite odor.	30 PINZU.1	cw	Yes			
25	A 34 34 10 10 10 10 10 10 10 10 10 10 10 10 10	\$1 <del>\$</del>	mroj	23-24 Dark gray general and adulis inthe hours our moderal so them with floor). Estimated as 1865	g =0 =0.1					
,				Bottom of bony = 24 B65						
25										
Note	<u>ss</u>				~		1	-		
				ransitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	P <sup>age</sup> & oK Boring: SB -	2 44	<u>'2</u>			

_									
	800-			Project: Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location: Wilmington, MA	Boring:		SE	<b>3-442</b>	
				Client: Olin	File No.:				
				6107090016-09					
Cont	tractor: Boart Longyear		Drilling N	Method: RotoSonic	Definitions:				_
	rator: Dale Duscher		· -	e ID/OD: 6" OD	S = Split Spoon San				
<u> </u>	ged By: Jerry Rawcliffe		+	D/OD: 4 7/8" OD inner casing/6" OD outer casing	U = Thin Wall Tube R = Rock Core Sam	ple			
	cked By: CTM		1	Mark Maggiore	V = Insitu Vane Sh $q_p = Unconfined Co$	mpressive	Strength (	psf)	
	Start/Finish: 8/31/2009			Wt./ Fall: NA	woh = weight of 14 wor = weight of rod	ls	ner		
Bori	ng Location: Area 4			vel: 8.7' bgs measured in borehole with casing	wc = Water Content oc = Organic Content				
	Elevation:			6-7' bgs based on soils					
	Sample Informat	ion							
	·						Ľ		
		_				<u>-</u>	atic	<del>-</del> -	_
۱.		er.		Sample Description and Classification		μdα	d ific	tica ctec	ţi
Depth		Recovery	Time			PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
ρe	Sample No.	Re	Ė			Ы	בֿ כֿ	Ar Co (Y)	Ë
	Run #1 0 - 5	4.2	1150	0-1.5' Dark brown to light brown to black to dark reddish					
	OC-SB-442-0/1.0-XXX		1200	brown fine to medium sand with some coarse sand and		0.1		YES	
				gravel. Moist, stratified with different colored layers 0.1 to	)		SP		
				0.5' thick.		0			
				1.5-2' Brown fine to medium sand. Moist.	. mi a				
				2-2.5' Black to very dark brown fine sand and organic del very fine/well decomposed.	0118	0			
				2.5-5' Brown to light brown fine to medium sand with a tr	ace				
				of silt. Very moist.		0.1	SP		
				No unusual odors.					
5						0.4			
	Run #2 5 - 10	4.9	1200						
				5-8' Brown to light brown fine to medium sand with traces	of	1			
				coarse sand. Very moist to wet.			SP		
						0			
				8-10' Light brown fine to medium sand with a trace of silt		0			
				Wet, stratified with some thin (1-3 mm) fine grained layers					
						0	SP		
	OC-SB-442-8/10-XXX		1210	No unusual odors.				YES	
10	DUP/XMS/MSD					0			
	Run #3 10 - 15	4.0	1210						
				10-11.5' Brown to light brown fine to medium sand grad	ing	0.4			
				to fine to medium sand with a little coarse sand and gravel.			SP/SW	7	
				Wet, some crude stratification with gravelly layers.		6.2			
				11.5-15' Brown to olive brown fine to coarse sand with					
				some gravel and a little cobbles and silt. Very moist to we	ŀ				
				with a couple of reddish brown "iron" stained areas.	••	1.7			
				•			GW		
						0.9			
15									
Note	es								
I									
				s, transitions may be gradual. Water level readings have been made at times ue to other factors than those present at the time measurements were made.	Page	1 of 2	2		

Boring:

**SB-442** 

MACTEC				Project:	Olin Chemical Superfund Site						
				Location:	Wilmington, MA	Boring:		SF	<b>B-442</b>		
				Client:	Olin	File No.:		~_			
				Ciletit.	6107090016-09	i ile ivo					
Cant	rester. Beart Language		Drilling N	lathad: DataS		D-6:-:4:					
	ractor: Boart Longyear			lethod: RotoS e ID/OD: 6" OI	<b>Definitions:</b> S = Split Spoon Sar						
<u>'</u>				D/OD: 4 7/8" O	U = Thin Wall Tube R = Rock Core San						
				Mark Maggio	V = Insitu Vane Sh $q_p = Unconfined Co$		Strength (	psf)			
				Wt./ Fall: NA	woh = weight of 14 wor = weight of roo	0 lb. hamn					
					wc = Water Content oc = Organic Conte	t, percent					
				vel: 8.7' bgs measured in borehole with casing 6-7' bgs based on soils							
Sample Information											
								٦			
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation	
	Run #4 15 - 20	3.1	1250							_	
				15-17.5' Ol	ive to olive brown fine to coarse sand with so	me	12				
				gravel and a			SP/SW	7			
				structure.			9				
				17.5.201.01	ive to olive brown fine to coarse sand and gra	vo1					
			1535		cobbles and silt. Wet, massive.	vei	2				
				with a little	cooles and site. Wet, massive.			GW/C	БM		
				Faint ammo	nia-like odor.		4				
20							10				
	Run #5 20 - 24	4.2	1315	20-23' Olive	to olive brown fine to coarse sand and gravel						
				with a little of	cobbles and a little to traces of silt. Wet, become	nes		GW			
				finer grained							
	OC-SB-442-20/22-XXX		1535	Faint ammor					YES		
				and silt (wet	gray gravel and cobbles with fine to coarse sar	nd					
					of rock = 23' bgs.						
			ШШ		oring = $24'$ bgs		Ш	Ш			
25											
			ļ								
Note			<u> </u>								
<u>INOTE</u>	<u></u>					Jeny-	14.	Ra	whff		
	Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.										
u.iu u											
						<b>Boring:</b>		SI	3-442		

	MACTE	С	Project: Olin Chemical Superfund Site  Location: Wilmington MA  Client: Olin  File No.:		- 443						
Cont	ractor: Bourthmager	Drilling	Method: Roto Somé Definitions:								
Oper	rator: Nale Discher	Bore Ho	le ID/OD: 47/8" OD in ner carry 600 Ower U= Thin Wall Tube								
	jed By: Jeny Runcht	~ Auger II	R = Rock Core Sam V = Insitu Vane Sh								
	ked By: C. Mazzolini		q, = Unconfined Compressive Strength (psf)								
_	Start/Finish: 8/20/09		Wt./ Fall: woh = weight of 14								
	ng Location: / freu 5	Water L	evel: " measard couth casing in boreholl.   we = Water Content	percent							
Ref. Elevation: 7.5 Basedon soil observations.											
	Sample Information										
Depth	Sample No.	Recovery	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation					
	13 Un #1 U-5 3 0C-SR-443-0/1.0-XX	.3 1630 1635	0-0.6 Concrete P10=0. 0-45' Brown fine to medicus sundwith a little coarse sund and grown. Moist, massice relation conform grain size Novnoscaladors. 20	5 why 5P	Yes						
			4.5-5.0 hight brown fine to aredian sand. MS130, very on i Rome grain size.	SP							
5	0	, _		50.0							
	CC-SB-443-6/B-XX	1.2 1635	I more than the second well the second will the second with the second will be second with th	0.5 0.5	Yes						
10		iw4s	Shelisty coerser grained at the bottom of the surple interval.  No is served stringer no sud oclors	0 5P							
	Kun #3 10-15 4	.4 /1.40	-10-12 higher brown to light grayish brown PID = 1 Fine to mediun sand. Very moist, massies, very vanform grain size-	5P							
15			17-15 higher due gry to light dire brown =0 - fine to coose soul and growd with a life to trans of 5/4 and colours very moist massing No unu sculodus or struming detected.	.6 SW/	\$w						
	ification lines represent approximate bound		s, transitions may be gradual. Water level readings have been made at times le to other factors than those present at the time measurements were made.  Boring:	1 of 30-40	<b>2</b> 43						

	MACTE	C	Project: Olin Chemical Superfund Site Location: Wilmington, WA.  Client: Olin  File No.:					
Oper Logg Ched Date Borit	ractor: Boarthunguer rator: Date Dyschot ged By: Jeny Rewolft sked By: C. Marrolli Start/Finish: \$ [30] US ng Location: Pres S Elevation:	Bore Hole Auger ID/ Sampler: Hammer	Definitions:  Definitions:  S = Split Spoan Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  Q = Unconfined Compression  Wt./ Fall:  Wel 3: 9 memore weight of 140 tb. have we water Content, percen  oe = Organic Content, percen  oe = Organic Content, percen  oe = Organic Content, percen  oe = Organic Content, percen  oe = Organic Content, percen	est ssiveStrength (psf) nammer cent				
	Sample Information				<del></del>			
Depth	Sample No.	Recovery Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation		
is	Run# 4 15-20 4	, ,	15-16. Thight olive gray to gray PID=1.0  Fine two parse such and grand with a little site and travers of cabilles. Very moist to wet, Wideraye of gran size, massie. =0.6	Sw/	W			
20	UC-5B-443-18/20-XXX	INELO	16.5 - 20 Olive gray to yellowish brown fine to coarse sand and grand with 50,7 a little site and colobles. Very moist prassus Yellow color maybe staining or weathering. Slight "mettalic" odor. 50,3	Sw	w Yes			
	Kun # 5 20-23 2		20-21 Olive gry hime to coarse soul and groved PID=0, 5 west, massue. 21-32 Olive gry to pole velloush glive freto coarse soul and growd with 51 H and colobbs. Not. = 0.7 23-22.5 Recovered a price of pranitic radiobalds. = 0.4	5W/G	W			
25		WIX	Estimate top of bedrock and 225' BGS. Bottom of boring = 23'BGS					
,								
Note	<u>es</u>							
			transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.  Boring: 5 (	= 2 3-L	143			

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington   MA  Client: Olin  File No.:			744	
Oper Logo Chec	ractor: Boarthungerator: John Crafta ged By: Jenn Rawe cked By: Tr Start/Finish: 8/27/0	ાર્નિલ	Bore Hol Auger ID Sampler:	Nethod: Roto San ic e ID/OD: 47/6"00 rang custy/6"00 outcom /OD: NA Dave Chapman Wt/Fall-MAT	Offinitions:  = Split Space Sample  1= Thin Wall Tube Sumple  2= Rock Core Sample  2= Insitu Vane Shear Test  = Unsefined Compossive Strength (psf)  the = weight of 140 lb, hammer  pre weight of 160 lb			
Bori	ng Location: Avec 5			vel: (1) and resing in boulhable "	re = Water Content, percent			
Ref.	Elevation¹:		Buse	donsons 26'86's	e = Organic Content, percen			
Depth	12 m #1 0-5 3,9 1315 0-2 Asplut						Analytical Collected (Y/N)	Elevation
	12 m #1 0-5 01-58-444-0/10	3,9 -XXX	1315	0-2' Asplutt 0-0.9. Brown fue to coarse sund and gra a trove of silt. (Pary subgrade). By to a 0.9-210are brown to brown fine to media method trace of coarse sund. Moist appearance with derher eighter colored	PID= 0.8 und with 2015t. 20.2 un soul Jaylord	5W 5P		
5	Ω + Λ = (2)	5,2	1320	appearant with deriver lighter cologed ( 29-5 higher brown to brown fixe to me. Sand with a libe sile at the least own of more lines and clother whole with depth Moist to very mist. No ususual order 5-5.5 higher brown to brown	the internal			
	0c-5B-444-5/7-	(1)	1330	sand. Moist. 5.5-6 Brown to death reddeds and frieto median sandwith a the se Very moist to wet. "meta ods.	nl 2	SP SP	1/10000	
10				to alithe coarse sant als some 8-10 Brown to oline brow gravel with a little to trees while Wet, will raye of grain 5/26	West 2	Cu		
	Ru#3 10-15	4.4_	1325	Sand and ground other by  (1-12 hills brown cothles  Fire to locace suntaints;  (12-15 Brown to dive brown due fine	T to	GW GW		
15	0C-5B-444-12/14	-X24	1400	to it is with a blackstained 4,4 layer in middle. Very moist.	Form \$ 12.2 How zu.2 = 0.4		u Yes	
Note		nameraries beha	een soil types, may occur due	to other factors than those present at the time measurements were made.	age / o∱- Boring: Sβ:	2	4	

Septh Septh	Sample Informat	_						
FRUN	Sample No. 19.5 B			Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	4415-30	4.4	1350	15-16.5 Brunto direbrown fine to coo 5 and and graph with colobles and a li 6 "coloble of trap of internal. Moist, magging 16.5-25 Oline to oline brown to oline Fine to cause sand and gravel into colobles and some to a little site. Ve moist havered appearant with colour different arene. "metallis" odor in some were of s	by 20.2	GW/	9	
Runt	) 5 14.5·20.5	1.6	(400	"metallin" odor in some over 00 5.  Dorkgray fine o corsesul and gravel and co 21th. Bottom is large rock frequents. In Strated setting very hard at 19.5' Bestin how sch wt 19.5-20'B65, Bottom of born, = 20,5' B65.	Jet 0,2			
9,5								

	Alla			Project: Olin Chemical Superfund Site						
	<b>MACT</b>	EC		Location: Wilmington, MA	Boring:		SE	3-444		
				Client: Olin	File No.:					
				6107090016-09						
Cont	tractor: Boart Longyear		Drilling N	lethod: RotoSonic	<b>Definitions:</b>					
Ope	rator: John Gralia		Bore Hol	e ID/OD: 6" OD	S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test					
Logo	ged By: Jerry Rawcliffe		Casing II	D/OD: 4 7/8" OD inner casing/6" OD outer casing						
	cked By: CTM			: Dave Chapman q <sub>p</sub> = Unconfined Compr woh = weight of 140 lb.				pressive Strength (psf)		
	Start/Finish: 8/24/2009			er Wt./ Fall: NA		ls , percent				
	ng Location: Area 5		Water Le	vel: 10' bgs and rising in borehole	oc = Organic Content, percent					
Ret.	Elevation:			Based on soils ~ 6' bgs						
	Sample Informat	ion								
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation	
	Run #1 0 - 5	3.9	1315	0-0.2' Asphalt						
	OC-SB-444-0/1.0-XXX		1320	0-0.9' Brown fine to coarse sand and gravel with a trace of		0.8	SW	YES		
				silt. (Paving Sub grade) Dry to moist.						
				0.9-2.9' Dark brown to brown fine to medium sand with a		0.2				
				trace of coarse sand. Moist, layered appearance, with darke and lighter colored layers.	er		SP			
				2.9-5' Light brown to brown fine to medium sand with a		0.4				
				little silt at the bottom of the interval. More fines and dark	er	0.8				
				colored with depth. Moist to very moist.  No unusual odors.		0.0	SP			
5				No unusuar odors.		0.7				
	Run #2 5 - 10	5.2	1320	5-5.5' Light brown to brown fine to medium sand. Moist.						
				5.5-6' Brown to dark reddish (iron stained) brown fine to		1.2				
	OC-SB-444-5/7-XXX		1330	medium sand with a little coarse sand. Very moist to wet,			SP	YES		
				"metallic" odor, uniform grain size.		0.2				
				6-8' Brown to dark brown fine to medium sand with some a little coarse sand along some layers. Wet.	to	0.4	SP			

8-10' Brown to olive brown fine to coarse sand and gravel

with a little to traces of cobbles and silt. Wet, wide range of

10-11' Brown to dark brown fine to coarse sand and gravel

11-12' Light brown cobbles and gravel with fine to coarse

12-15' Brown to olive brown to olive fine to coarse sand and gravel. Silty layer from 12.2 to 12.8 with a black stained 1/2"

**Notes** 

Run #3 10 - 15

OC-SB-444-12/14-XXX

Jerry 7. Rawlffe

0.2

0.3

0.8

1.3

0.4

0.2

GW

GW

GW

GW

GM/GW

YES

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

grain size..

sand and silt. Wet.

with a little small cobbles. Wet.

layer in the middle. Very moist.

1325

1400

4.4

Page 1 of 2

Boring: SB-444

	MACT	EC		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin	Boring: File No.:		SI	<b>3-444</b>	
					6107090016-09					
	ractor: Boart Longyear			lethod: RotoS		Definitions:	1.			
•	ator: John Gralia			e ID/OD: 6" O		S = Split Spoon Sar U = Thin Wall Tube R = Rock Core San	e Sample			
	jed By: Jerry Rawcliffe				DD inner casing/6" OD outer casing	V = Insitu Vane Sh q <sub>n</sub> = Unconfined Co	ear Test	Strength (	nef)	
_	ked By: CTM Start/Finish: 8/24/2009			Dave Chapm Wt./ Fall: NA	an	woh = weight of 14 wor = weight of roo	0 lb. hamr		psi)	
	ng Location: Area 5				nd rising in borehole	wc = Water Content oc = Organic Conte	t, percent			
	Elevation:		1	Based on soi			.,,			
	Sample Informat	ion			-					
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 19.5	4.4	1350							
				gravel with	rown to olive brown fine to coarse sand and cobbles and a little silt. 6" cobble at top of pist, massive.		0.2	SW/G	W	
				sand and gra	Olive to olive brown to olive gray fine to coa avel with some cobbles and some to a little sil layered appearance with color changes over eas.		0.2	SP	YES	
20	Run #5 19.5 - 20.5	2	1400	"Metallic" o	odor in some areas of the sample		0.1	GW		
25	Null #3 19.3 - 20.3			Bottom is land Started getting Estimate top	ne to coarse sand and gravel and cobbles with rge rock fragments, wet. ng very hard at 19.5'. of bedrock at 19.5-20' bgs. oring = 20.5' bgs.	silt.	Ш	GW/C	GM	
			<u> </u>							
Note	<u>98</u>					Jeny	72.	Ro	wbff	
					e gradual. Water level readings have been made at times an those present at the time measurements were made.	Page Boring:	2 of 2		3-444	

	Ala			Project: Olin Chemical Superfund Site	-			
	MACT	EC		Location: Wilmyton MA	Boring: SB	-41	15	
				Client: Oliv	File No.:	,	-	
				- V ( ( )				
Cont	ractor: Board house	ien	Drilling N	Method: Roto Sonic	Definitions:			
Oper	rator: Dave Disher		Bore Hol		S = Split Spoon Sample U = Thin Wall Tube Sample			
	jed By: Jerry Rawc	ffe	Auger ID	10D: NA	R = Rock Core Sample			
Chec	ked By: C. Mazzolin	1	Sampler:	Daye Chymray	V = Insitu Vane Shear Test qp = Unconfined Compressive	Strength (	psf)	
Date	Start/Finish: 8 24 04		Hammer		woh = weight of 140 lb. ham wer = weight of rods	mer		
	ng Location: Area 4		Water Le	vel3: 8.5 BGS Measured in boreliele	we = Water Content, percent ec = Organic Content, percen			
Ref.	Elevation <sup>1</sup> :				ec - Organic Content, percen			
ı	Sample Informati	on	_		L			
						Unified Classification		
		خ		Comple Beautifus and Classification		ical	cai	r.
ا ۾ ا		Š		Sample Description and Classification		ied	lyti ect	ati
Depth	Samula No.	Recovery	Tine			Unified Classifi	Analytical Collected (Y/N)	Elevation
윽	Sample No.	4.0	0855	0-0-1 Aspluft	Out a se	٥٠	4 0 C	ш
	06-5B-445-0/10-XX		0400		P102015	GW	Y 5	
	06-56-995-0/10-22		0100	with three of cases. Moist.	rest.	GW	' -	
				1-1,2 Gray fuetocoose sudand growl-c	areas to =0.4		. 1	
				he broken up coueret.	ppers	GW		
<u> </u>					e seed = 0.5	SW		
l		in	0	1. 2 - 2 Brown to duckbrown fineto coars	a send =013			
		į AK	TV SIPLAR	and ground with some and trues colles.	.00		1 - 1	
l				2-5 Barkbrown fine to wellin sent is trues of course small groups and u	inth whom	200		
5				trues of course grand and Type and w	il = h	50		
Ľ	Run#2 5-10	4.4	0400	signeers to he areas will sight Anyquets	VCHIMIGA		-	_
i	KUNDA JULO	7.9	0400	5-7,5 Parkbrown treeto weden sand.	, PIDZ 0.8			
1			-	very moist, slight stratified appearance, in	Loan			
1			<del> </del>	Very moist, slight stratified appearance, on grain stre. Some reddill brown armolapped be iron straing near to other at interval	100 = 0.6			
ı				he then straing were soften at interval	. (	12		
$\vdash$			<del> </del>	7.5-10 Alternating Brown and reddich bro	WM (TOUSTUME	1		
				layers of fine foundan sund with to	ees =0.9	SP		
1			264.0	of course said. Very moist to west, with	form = 0.			
	06-53-445-8/10-1	04	0910	grainsize.	- U.		12	
110				1 1 2 1	=1.2			
10	10 13 10 10 10	. 1 //		to olive prouse				_
	Runt 3 10-15	4.8	0910	10-11.5 Brown fine to weden said with to	2005 PID= 1.1			
			ļ	of gravel. Very moist to wet, musson. vunto,	en grounster.	50	4	
1			<del> </del>	11,5-13,5 Brown to direbrown to reddis	1.7 = 1.2			
1				Cironstained?). Fineto meaning same with	118-003			
<u> </u>			ļ	of coce ise and and growl and willer become silvy reastootom of interval.	ues	_		
			-	Highery stry reas words or inserved.	= 1.3	۱		
				13.5-15 Brun to olive brown fresto course	squel	GW		
			<u> </u>	and grand with transof cutility and sit.	Very moss			
15				13.5-15 Brown to dire brown for to course and grown with transot cutilisands to. I massue will properly of grainsize. No unusal	codos =1.6			
<u> </u>				deterra.				
Note	<u>es</u>							
1								
1								
1								
1								
1								
-	Mination lines	oundaria A . I	man call 6	transitions may be analyst. Water level madings have been made at times	Dogo /	0		
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page / ov	2		
1	leves 11 Carro	Vi1/11	7			. د ر		
LO	7 - 500	7/1/			Boring: 58	- 4	25	
		0						

	MACT	EC		Project: Olin Chemical Superfund Site Location: Withungton, MA.  Client: Olin .	Boring: 50 File No.:	-44	5	
Conf	tractor: Boarthouse	1100	Drilling I	Method: Rohisomic	Definitions:			
	rator: Dale Dusch			le ID/OD: 4 1/8/62	S = Split Spoon Sample			
	ged By: J-Rawall			10D: 110D	U ≈ Thin Wall Tube Sample R = Rock Core Sample			
					V = Insitu Vane Shear Test			
	cked By: C. Mazzalin			: Dave Chepman Wt/Fall: NA	q <sub>p</sub> = Unconfined Compressiv woh = weight of 140 lb. ham		ost)	
	Start/Finish: 8 H J	(			wer = weight of rods			
	ng Location:		Water Le	vel3: 8,5'065 measured in boschule	we = Water Content, percent se = Organic Content, perces	•		
Ret.	Elevation <sup>1</sup> :							
1	Sample Informa	tion			<u> </u>			
Depth	Sample No.	Recovery	Time	Sample Description and Classification				Elevation
15	Bun #4 15-20	4,9		15-17-7 Ob Alaman La selve com Aire das	0.00	Unified Classification	Analytical Collected (Y/N)	
	PICA PY 13-70	71.7		15-17.7 Olivebovumto plinegry fire to c Sand and gunel with a little sibanda Very moist to wet 17.7-18 buyer of light sike gry freeto corre and gruel with a cobble and truesor	sund sik-	Cul	1	
w				18-20 Anelogowy fine to cocose sund and with an 11/10 5/1 and torses of coldles. U moist, messed, will sugge of grain 5/2 some very deallow on to black staned my at 1000 tors of integral. No we see of	toricl =1.1	60)		
	Run#5 20-25	3.9	0945	20-25 Olive tooline borusto olive of fine to course send conformed in a 11th cobbbes and little to truces o Very moist towet, massive.	4516.	Cly	бщ	
15	<u>.</u>			No unasual ochres eletected.	20.6 20.7			
۴	Run \$6 25-28	2.8	1005	25. 21 5 March borner Landle with a see	ye PID=0.2			
	ac-sg-445-25/27-		1015	25-26.5 Olive brown to yellowish oran forown fire to coarse sunt and grow to truce of sit. Slight wetallic" of 20.5-27.5 Vine gray Kogny granland in a sily fine to coarse sund unsternation appears to be weathered pulveriand rock becomes very hundred 27.5  27.5-28 Roch Frequents While and grand Estimate top of roch to be 26.5	tor. =1.0 carballs = 0.4	Chyl	M Yes	
		<u> </u>		Decomes very runs at 41.5	0.			
1				127.5-28 Kachtrepments While and gre	vasized.			
30				Estruite topof ouch to he 26.5				
Note	es			1				
:				Bottom of boring = 28'BG.S				
				, transitions may be gradual. Water level readings have been made at times	Page 200	£ 2	2	
ang	Inder conditions stated/ Fluctuation	s otygroundwati	r may occur du	e to other factors than those present at the time measurements were made.			•	
	Huy Kain	XY //	7		Boring: 56	. 111	15	
		- [1]	/		porning: J.B	77	>	
		10						

1	MACT	CEC		Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client: Olin	Boring: Se	3-44	16	
Operator: D Logged By: Checked By: Date Start/Fini Boring Location Ref. Elevation	ish: 8/25 on: Hven 4	udle va	Auger ID Sampler Hammer Water Le	le ID/OD: 47/4 OD : new caky/6000 outer casing. 1/OD: NA: 1: Dane Chipman Wt/Fall: NVJ	Definitions:  S = Split Spon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q <sub>p</sub> = Unconfined Compressi  woh = weight of 140 lb. han  wor = weight of foods  we = Water Content, percen- oe = Organic Content, percen-	re Strength ( timer	psf)	
Depth Sa	mple No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	105 446-0/10	3.6	0800	Concrete 0-0.6 0-5 hight brown to light gray ish brown fine of median sund. Moist, slight luye appearance, Some dark brunto blish or luyers but no useble organic debris; turgs;	PIDZ 32-pp exect punic = 28- excessed)		Yes	
5				Traces of general at top of internal.	=31 =34 =29			
	25-10 446-57-2	4.9	0805	5-8 hight brown to light grayish brown fine to wedien sund with truss of consultant layers. Ver some grand at 7.5-8 indent.	un AD=0	50	Yes	
10		MS/WSD		8-to 9,5 hight bown fine to nedita with a true of coarse send. West. 9,5-10 Brown to dark bown fire to southwith a true of coarse such	send 20	5P 5P		
Ron	¥3 10-15	512	0810	10-11 higher brown five-median sent with obvious of coarse sent controlly with west. West: 11-12.5 Office april of grand to brown of netocoars grandwith some collecte and a true of stop is graying bottom is brown.	a PIN-0 e surland ib. Wa zo	GW		
15				12.5.13 hight owen fine occurse sundand a trace of fit. Very most over the 13-15 Oline bourn fine to course sund an with some 5th. very moist to wet man will rune of gum sie.	V	Cuy G	ч	
Notes Pil) resonu	realize h	non o-	5 are atino	suspect - filter got plugged - cheunes rendigs > 0.1. PID prosel postrius respons	land reculit ekstwikts	horp	الم	
				transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / of Boring: 5B	•	16	

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: 5B-446 File No.:				
Oper Logo Cheo Date	ractor: Reach have ator: Dale Dusch led By: Jenn Kawa ked By: CTh Start/Finish: 805109 ng Location: Drea 4		Auger ID Sampler: Hammer	Method: Poto Sonic e 1D/DD: 476 00 invercesing /OD: NA  Dave Chapman WL/Fall: NA  vel3: 9,7/ in brachole w casing-	Definitions:  5 = Spit Spoon Sample U = Thin Wall Tube Sample R = Rinck Core Sample V = Insitu Vane Shear Test q = Uncordined Compressive Strength (psf) woh = weight of 140 lb. hammer wow weight of rods we = Water Content, percent				
_	Elevation':			7-8 Basedonsoits-	oc = Organic Content, perce	<b>"</b>			
	Sample Informat	ion			<u> </u>	<del></del>			
S Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)	Elevation		
15	Kun#415-20	4.9		15-14 Olive bown Aire to course and and		GW			
	UC-SB-446-15/17-/	GK.	0400	grand with some silve wet, as useur. 16-16.5 Bounto slightly reddesh brown (1 fine to course some colymnel with at 15	nustruied?)	w Yes			
				1615-20 Olwero cline brown frie to coa and gravel with a true of site. Well, a coarses grained layers.		6ω			
20				,	20				
	KINI#5 20. 25	4.8	0825	sand and and with a true of sels.	8-21.8 Oline gray to light yellowish brown with sitt and some wills = 1				
25				21.8-25 Gray to white gray Colobles with and some fine to course such and rock (Coloble zone curth 1015 of privaried rock.	gruel z o h Hourz z o = v				
	Aun #6 25-30	3.6	0855	Gray to light going grandant choles. in ruch flour (pulveried rock).					
			<del> </del>	Top of wentloved roch estimated to	=0				
				be 21.8'					
				Butom of borney = 30'BGS	A				
			<del> </del>	Ruch appears to be very weathered	adthis _				
Note	<u>ss</u>			location					
Strat	figation lines represent approximate inder conditions stated, Fluctuations	of groundyfate	veen soil types, rmay occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 204	2			
	Jerry Raw	LHIN			Boring: 56-	-44b			
		10							

	MACT			Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client:	Boring: 50 File No.:	3-4j	47	
Log Che Date	tractor: Beart how rator: Gray Hallides ged By: Terry Raw cked By: CTh Start/Finish: 67 3/09	30	Bore Ho Auger ID Sampler Hammer	Method: Row Sonic le ID/OD: 6000 MOD: 47/800 inner casing/600 over oasms Whosh Magazine Wt. Fall: NA	Definitions: S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressiv woh = weight of 140 lb. hart wor = weight of rods	ve Strength i	(psi)	
-	ing Location: Area 4 Elevation:		Ivvater Le	evel3: 6-8' Based on soils	we = Water Content, percent oe =Organic Content, percent			
	Sample Informa	tion				,		
Depth	Sample No.	Recovery	Тіте	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	Run#1 0-5 06-51-447-0/60	4.1	0805	0-1.0 = Parkbrium für tor siere sund with a little sit and tomes of grand. Ver wet, grows + rout libers, some plassic trush (-2 highet group pulverried concrete	PID-S THUSIST FU (TUPSOTIFIE).	Sp	Yes	
5	OC-58-447-3/5-X	at.	0835	2-4 Brown to dark brown Fight come with a little consessed undground the Redwish layer at 235-4 which appears to co brish tash. ash. ash brown town the town the form to some the sound the sound to some the sound to so so so so so so so so so so so so so	sigt. 225	sp	Yes	
	Ncu # 2 5-10	5.0	0810	5.5.7.5 brown to dark by man fine to used in 5.5-7.5 hight brown to brown fine to media with these of citt. Starthed with 5 sine for areus al (7-7.5). We unwind odors	PIBZ 3.4 in smal zv. 3 rergransel zv. 1	5P		
10			200	7.5.9 hybr reddyli brown ("Iron") 500000 medun sundevith trues of coarce sun moist to wel hayeved appearen. 9-10 Olive Lo dakolungry his to coarce and grand with trues of coings and it	dovery = 0 example 0.1	5P 64/6	щ	
	Rua#3 10-15	5.6	0835	10-12 Olice brown to dive gray these con sundand apaul with trace to a little silver Wet; massive. No unusual polore. 12-13 Brown to clike brown his to course so much wel some will and trace intechtle	colles.  colles.  and iff	646	M	
15				Wetmassin- stight "metholic" odor. 13-15 Olive browy fine to a coarse saul o grand with a lite colders and traces of Very moist tower.	cunt = 2,5 filt. = 20.3	CUY	n	
Note	9 <u>85</u>							
				to other factors than those present at the time measurements were made.	Page / o/ Boring: S/B	2-4	47	

	Adla			Project: Olin Chemical Superfund Site				
	MACT	<b>EC</b>		Location: Wilmington, MA.	Boring: \$1	3-4	47	
1				Client:	File No.:			
Cont	ractor: Beart home	yerr		Method: Roto Sanic	Definitions:			
Oper	ator: Grey Halledin	J V		e ID/OD: 6 DD	S = Split Spoon Sample U = Thin Wall Tube Sample			
	ed By: Terry Kawk	LIHR	Auger ID	100: 47/800 inner cusing/6000 orter oasing	R = Rock Core Sample V = Insitu Vane Shear Test			
	Start/Finish: 8 31 0		Hammer	West Magazine	q <sub>p</sub> = Unconfined Compressives with = weight of 140 lb. han		st)	
	ng Location: Area 4			vel3: 6-8'BGS based ensoits.	wor = weight of rods we = Water Content, percent			
	Elevation :				oc = Organic Content, perce			
	Sample Informat	tion						
	·					Unified Classification		
		2		Sample Description and Classification		_ ica	ed	u o
Ę	(GA)	Recovery	9	ouniple Description and Stagonication		fiec	S e s	Elevation
Depth	Sample No. 31	Rec	Time			를 등 등	Analytical Collected (Y/N)	E e
15	Runky 15-20	4.8	6900	15-18 Olice to vice broug to brown fix coarse sund and growed with a little s coolers. Vet muscul but with some bu	eto PINEOS	Gus		
	-		L	coarge sund and growel with a little s	1 It and	19		
			<u> </u>	cookes, we mustin but with some bu	wulageses 3.3			
				18-19.5 Bown to reddisty yellow brung	fine = 7.2			
<u> </u>			<del>                                     </del>	the maccurate and amount with	G -7.3			
1		<del>                                     </del>	1	trace of solules and site. West, slight luge	eved application	4.	An .	
	06-58-447-18/20	-111	0905	MAN STOPP MUTTALLE BOOM.	1.1		Yes	
		On.	0905	19.5- 20 Olive gray fue to coarse soude some grand and cotales, Wet, massing	vesiltuite			
20				Four grand cut coviles, Wet, massey	10/			
		X	$K \backslash X$	Botimate top of rochad 20'BC	21.4			
		/ / /	7./	Return to ton of rochad 20 BC	5		1	
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1		-	1	Bottom of boring = 21 B65				
l i								
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Strati	ication lines represent approximate inder conditions stated. Fluctuations	oundaries betw of groundwater	reen soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of Boring: 5/3	2		
1	Jour Kourd	JUN			Davis CA	1111	7	
LC	The work of	MY			Boring: 3/2	77		

	MACTEC	Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin 6107090016-09		Boring: File No.:					
	tractor: Boart Longyear	Drilling Method: RotoSonic			Definitions: S = Split Spoon San	nale.			
Ope	rator: Greg Halliday	Bore Hole ID/OD: 6" OD			U = Thin Wall Tube Sample				
Log	ged By: Jerry Rawcliffe	Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing			R = Rock Core Sam V = Insitu Vane Sh	V = Insitu Vane Shear Test			
Che	cked By: CTM	Sampler: Dave Chapman Hammer Wt./ Fall: NA			q <sub>p</sub> = Unconfined Co woh = weight of 14	ompressive Strength (psf)			
Date	Start/Finish: 8/31/2009				wor = weight of rod	İs			
Bori	ng Location: Area 4	Water Le	vel: 6-8' bgs	based on soils	wc = Water Content, percent oc = Organic Content, percent				
Ref.	Elevation:								
	Sample Information	-							
	very			Sample Description and Classification		ppm) ed sification /tical	tion		

	Sample Informati	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-447-0/1.0-XXX	4.1	805 810	0-1' Dark brown fine to coarse sand with a little silt and traces of gravel. Very moist to wet, grass and root fibers, some plastic trash. (Topsoil fill).	0	SP	YES	
				1-2' Light gray pulverized concrete.	0.1			
				2-4' Brown to dark brown fine to medium sand with a little coarse sand and gravel. Moist, reddish layer at ~ 3.5-4' bgs which appears to contain brick and ash.	25			
	OC-SB-447-3/5-XXX		825	which appears to contain offer and asir.	2.8		YES	
				4-5' Brown to dark brown fine to medium sand. Moist.		SP		
5					0.8			
	Run #2 5 - 10	5.0	810	5-5.5' Brown to dark brown fine to medium sand. Moist. 5.5-7.5' Light brown to brown fine to medium sand with a trace of silt. Stratified with some finer grained areas at 7-7.5' bgs.  No unusual odors.	3.4	SP		
10				7.5-9' Light reddish brown ("iron") stained fine to medium sand with traces of coarse sand. Very moist to wet, layered appearance. 9-10' Olive to dark olive gray fine to coarse sand and gravel with traces of cobbles and silt. Wet, massive.	0.1	SP GW/G	M	
	Run #3 10 - 15	5.6	825		0.1			
	Kuii #3 10 - 13	3.0	623	10-12' Olive brown to olive gray fine to coarse sand and gravel with traces to a little silt and cobbles. Wet, massive. No unusual odors.	0.4	GW/G	M	
				12-13' Brown to olive brown fine to coarse sand with gravel some silt and traces of cobbles. Wet, massive, slight "metallic" odor.	1.1	GM		
15				13-15' Olive brown fine to coarse sand and gravel with a little cobbles and traces of silt. Very moist to wet		GW/G	M	

Notes

Jerry K. Rawhlfe

**SB-447** 

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

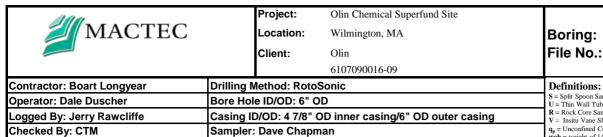
Page 1 of 2

Boring:

	MARA OTT	EC		Project: Olin Chemical Superfund Site			~-		
	MACT	EC		Location: Wilmington, MA	Boring:		SE	3-447	
				Client: Olin	File No.:				
			1	6107090016-09					
	ractor: Boart Longyear			lethod: RotoSonic	<b>Definitions:</b> S = Split Spoon Sam	ınle			
_	ator: Greg Halliday			e ID/OD: 6" OD	U = Thin Wall Tube R = Rock Core Sam	Sample			
	jed By: Jerry Rawcliffe cked By: CTM			D/OD: 4 7/8" OD inner casing/6" OD outer casing  Dave Chapman	$V = Insitu Vane Sho q_p = Unconfined Co$		Strength (	psf)	
	Start/Finish: 8/31/2009			Wt./ Fall: NA	woh = weight of 140 wor = weight of rod	s	ner		
	ng Location: Area 4			vel: 6-8' bgs based on soils	wc = Water Content oc = Organic Content		t		
Ref.	Elevation:								
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 21	4.8	900						
				15-18' Olive to olive brown to brown fine to coarse sand		0.8	GW/0	GΜ	
				gravel with a little silt and cobbles. Wet, massive, but with some brown layers.		0.3			
				18-19.5' Brown to reddish/yellow brown fine to coarse sa and gravel with a trace of cobbles and silt. Wet, slight	nd	7.2			
	OC CD 447 10/00 VVV		005	layered appearance and slight "metallic" odor.		4.0	CW	VEC	
	OC-SB-447-18/20-XXX		905	19.5-20' Olive gray fine to coarse sand and silt with some		4.9	GW	YES	
20				gravel and cobbles. Wet, massive.		2.1			
			Ш	20-21' Gray cobbles/rock. Estimate top of rock at 20' bgs. Bottom of boring = 21' bgs		1.4	П	Ш	ПП
25									
25									
Note	<u>es</u>		•				•		
					Jeny 7.	2. 1	Cau	rlffe	/
				s, transitions may be gradual. Water level readings have been made at times the to other factors than those present at the time measurements were made.	Page 2	2 of 2	2		
					Boring:		SI	3-447	

Contractor Rach Large of Dilling Method Rob Samile Olivin  Client Olivin  Client Olivin  Client Olivin  Client Olivin  Client Olivin  Client Olivin  Client Olivin  Client Olivin  Client Olivin  Comprehen Charles Operation  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Comprehen Charles  Co		40.0		Project: Olin Chemical Superfund Site	•			
Contractor React Language Delling Method: 9th Service Operator Date Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Developed Description Descript	1	MACTE	C	Location: W. mination MA	Boring: $SB$	-4	48	
Contractor Real Language Process of Post Man Matthews: Date Service Special Contractor Color Description and Classification  Sample Description and Classification  Sample Information  Sample Description and Classification  Sample Description and Classification  Sample Information  Sample Description and Classification  Sample Description and Classification  Sample Information  Sample Robert Process of Pr	1			I				
Operator: Date Subtribution Sompton Mayor (DOD): 1/18	l			Circle Oliv	1 116 140			
Operator: Date Subtries Done Hole 1000: 4/8 * 00 inset executed to 100 assections in the content of the content	Cont	ractor Dan Change : an	- Drilling	Wethod: Por Sone	Definitions:			
Larged By Tange Rase At 19 19 Date Chargerean Samples Come Samples Date Chargerean Samples Compared to the Samples Date Chargerean Samples Date Chargerean Samples Date Chargerean Samples Date Chargerean Samples Date Chargerean Samples Date Chargerean Sample Date Chargerean Samples Date Charger				le ID/OD: 47/00 DO invest over 16000 o percession	S = Split Spoon Sample		-	
Checked By: CTrn  Sample: Dave Cheapmen.  David Fall: MAT  Boring Location: Pres. [ Water Level': 6.5° Blos was created in David Line. I was regarded to a human was regarded		111			R = Rock Core Sample			
Date Sample 10 19 19 19 19 19 19 19 19 19 19 19 19 19						Strength (	(psf)	
Borting Location: Proc. [ Water Lavel: 185 1865 weeercard in Donathall - who came process and the sample Information  Sample Information  Sample No. 2			Hamme		woh = weight of 140 lb. ham		• ,	
Sample Information  Sample Description and Classification  Barrier 10 - 5 4.5 1000  C-51-4145-0/10 746 10:05  Washington Mostly marked from the dark box with frost of PID-14.5  Washington Marked Paper 1 (4).  1.5-5.0 Gray grand repress fill.  1.5-5.0 Gray grand repress fill.  1.5-5.0 Gray grand repress fill.  1.5-5.0 Gray grand repress fill.  1.5-5.0 Gray grand repress fill.  1.5-5.0 Gray grand repress fill.  1.5-10 5.0 1025 5-9' Gray grand repress fill plb=15  Very now of becomes wet:  1.5-10 5.0 1025 5-9' Gray grand repress first to come said with 5.15 and grand and review of collides.  1.5-10 6.51 445-9/10 445 5500  1.5-10 1025 5-9' Gray grand repress first to come said with 5.15 and grand and review of collides.  1.5-10 6.51 445-9/10 445 5500  1.5-10 1025 5-9' Gray grand repress first to come said with 5.15 and gray repress first to come said with 5.15 and gray repress first to come said with 5.15 and gray repress first to come said with 5.15 and gray first for come said with 5.50 and gift view of the forest first to come said with 5.50 and gift view gray first for come said 2.5 and gray with 5.50 and gift view gray first for come said 2.5 and gray with 5.50 and gift view gray first for come said 2.5 and gray with 5.50 and gift view gray first for come said 2.5 and gray with 5.50 and gift view gray first for come said 2.5 and gray with 5.50 and gift view gray first for come said 2.5 and gray with 5.50 and gift view gray first for come said 2.5 and gray gray first forest first	Bori	ng Location: Press 1	Water L	evel3: 6.5 B65 menued in Dorohuli-	we = Water Content, percent			
Sample No.  Sample Description and Classification  But 10-5 415 1000  CSD 445-010 2xxx 10:05 hasher and the stress of growth which the stress of growth and silt.  Place of Geoffect at 35' = 17.4  1.5-5.0 Gray growth representitle Places  Very most, because wet.  18  Runt 35-10 510 1005 5-4' Gray growth representitle stress of growth and three or one sail with the silt and growth and three or one sail was not and three or one sail silt and growth and three or one sail silt and growth and three or one sail silt and growth and three or one sail silt and growth of the growth and three or one sail silt and growth of the growth and three or one sail silt with 5000 growth of the growth	Ref.	Elevation¹:			ee = Organic Content, percen	r		
First 10-5 4.5 1000 0-2.5 Brown to dark brown his to 110-14.8  ac 50-444 1/10 2244 10:05 thanks and wight treated growl and off.  World marked fresh from fresh fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reprop fill.  1.5-5.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-6.0 Gray grand reproper fill.  1.5-7.4 Gray grand reproper fill.  1.5-7.4 Gray grand repr		Sample Information						
First 10-5 4.5 1000 0-2.5 Brown to dark brown frot 10-14.8  oc 50-444 1/10 2000 10:05 Wahue and wight Arresof gravel and only.  World marked faport fifth.  Place of Geoffapor cot 25." = 17.4  1.5-5.0 Gray grand reprop fill.  2/3.2  2/4  Pho-15  Van mored, because with.  2/8  Port of Geoffapor of 10-15  Van mored, because with.  2/8  Port of Geoffapor of 10-15  Van mored, because with.  2/8  Port of Geoffapor of 10-15  Van mored, because with.  2/8  Port of Geoffapor of 10-15  Van mored, because with.  2/8  Port of Geoffapor of 10-15  With and gravel and provide of college.  2/8  Port of Geoffapor of 10-15  Port of Geoffapor of 10-15  Port of Geoffapor of 10-15  Port of Geoffapor of 10-15  Port of Geoffapor of 10-15  Port of Geoffapor of 10-15  Port of Geoffapor of 10-15  Port						<u>0</u>		
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		Jens [ Lewill !			Boring: SA	-41	18	

Operator: Date Description and Classification    Sample No.   Sample N	sple cor Test suppressive Strength (pol) 0 lb. liammer b t, percent sd, percent
Boring Location: Ave.   Water Level <sup>3</sup> : 6,5   Water Level <sup>3</sup> : 6,5   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6   Water Level <sup>3</sup> : 6	b, percent mi, percent
Sample Description and Classification	a attor
Sample No.  Sample No.  Sample Description and Classification  Find 4 15-20 4.0 1040 15-17 Olivean to dark diverging growl  Mind 4 15-20 4.0 1040 15-17 Olivean to dark diverging growl  Mind 4 15-20 4.0 1040 15-17 Olivean to dark diverging growl  Mind 4 15-20 4.0 1040 15-17 Olivean to dark diverging growl  Mind 4 15-20 4.0 1040 15-17 Olivean to dark diverging growl  Mind 4 15-20 4.0 1040 15-17 Olivean to dark diverging growl  Mind 5 15-10 1040 15-17 Olivean to dark diverging growl  Mind 5 15-10 1040 15-17 Olivean to dark diverging growl  Mind 5 15-10 1040 15-17 Olivean to dark diverging growl  Mind 5 15-17 Olivean	
Runt 4 15-20 4.0 1040 15-17 Olnegry to dark due gry growl PIB=	Unified Classification Analytical Collected (Y/N)
	2 6W
17-19 Olivebrum Pine to coase sund configuration to the to coase sund configuration to colorles. =	5 CW/SW
With Some Fresh weden such	
Costmute top of hedroil cot 19'BGS	51
Bottom of bong=20'BGS.	
lotes	



Water Level: 6.5' bgs measured in borehole

Hammer Wt./ Fall: NA

Date Start/Finish: 8/25/2009

Boring Location: Area 1

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

**SB-448** 

wor = weight of 140 lb. name wor = weight of rods wc = Water Content, percent oc = Organic Content, percent

	Elevation:		TVater Le	ver. 0.5 bgs measured in borenoie	Content, percent			
	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.5	1000					
	OC-SB-448-0/1.0-XXX		1005	0-2.5' Brown to dark brown fine to medium sand with traces	14.8		YES	
				of gravel and silt. Moist, massive. (Topsoil fill). Piece of geofabric at 2.5' bgs.	17.4			
						FILL		
				2.5-5' Gray gravel rip rap fill.	13.2			
					9.8			
5					7.0			
	Run #2 5 - 10	5.0	1005					
				5-9' Gray gravel rip rap fill. Very moist, becomes wet.	15			
				3-9 Gray graver rip rap rini. Very moist, becomes wet.	18			
					10	FILL		
				Piece of Geotextile at 9'	22			
	OC-SB-448-8/10-XXX		1030	9-10' Gray to olive gray fine to coarse sand with silt and	34			
10			1030	gravel and traces of cobbles. Wet, massive.	34			
	Run #3 10 - 15	4.8	1015	10-12.4' Gray to olive gray rip rap fill. Wet, possible cave-				
				in) or fill for leveling base for Geotextile.  12.4-13' Olive to olive gray fine to coarse sand and silt with	13	FILL		
				some gravel. Wet, massive.	15			
				13.14' Light gray grayal and cabbles in rock flour (passible)				
				13-14' Light gray gravel and cobbles in rock flour (possible) broken up cobble.	0	GM		
				14-15' Olive to dark olive brown fine to coarse sand and gravel with some silt. Very moist, micaceous, some dark	0.5			
15				coloration that appears to be associated with micaceous areas	5.6			
Note	es							

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**SB-448 Boring:** 

Jeny 72. Rawlffe

	<b>MACT</b>	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA	Boring:		SE	<b>3-448</b>					
				Client: Olin	File No.:								
				6107090016-09									
Cont	ractor: Boart Longyear		Drilling M	ethod: RotoSonic	<b>Definitions:</b>				_				
Oper	ator: Dale Duscher		Bore Hole	e ID/OD: 6" OD	S = Split Spoon Sa U = Thin Wall Tub	e Sample							
Logg	ed By: Jerry Rawcliffe		Casing ID	/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sar V = Insitu Vane Sl								
	ked By: CTM			Dave Chapman	q <sub>p</sub> = Unconfined C woh = weight of 14			psf)					
_	Start/Finish: 8/25/2009			Wt./ Fall: NA	wor = weight of ro wc = Water Conten								
	ng Location: Area 1 Elevation:		Water Le	vel: 6.5' bgs measured in borehole	oc = Organic Conte	ent, percen	t						
Rei.					1								
	Sample Informat	ion				1	_						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation				
	Run #4 15 - 20	4.0	1040					,					
				15-17' Olive gray to dark olive gray gravel and cobbles w	ith	2	GW						
				fine to coarse sand and silt. Wet.									
				17-19' Olive brown fine to coarse sand and gravel with tra	aces	20							
				of cobbles and silt. Wet, massive.									
				,		5	GW/S	SW					
	OC-SB-448-17/19-XXX		1045	19-20' Gray gravel and cobbles in rock flour with some fito medium sand.	ne	32		YES					
20				Estimate top of rock at 19' bgs.		51							
			шш	Bottom of boring = 20' bgs									
			1										
25													
Note	<u>!S</u>												
					Jeny.	12.	Rai	ulffe	/				
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page	2 of 2	2						
					Boring: SB-448								

	MACTI	EC		Project: Olin Chemical Superfund Site Location: Wilmington MA. Client: Olin	Boring: 58-449 File No.:						
Logo Cheo Date Bori	ractor: Boar hunger rator: John Cralia ged By: Jeng Rawel sked By: Start/Finish: 8/27/09 ng Location: Aren & Elevation:	Ĥr 1	Bore Hol Auger ID Sampler: Hammer Water Le	Method: Rote Sonic e 1D/DD: 47/6"00 rámy custy/6"00 ouderons JOD: NA  Dave Chip man Wt/ Fall: Mb vel3: 7-6 and risin 'Based om soils (B65)	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insin Vane Shear Test Q = Unconfined Compressive Strength (pst)  wah = weight of 140 lb. hammer  war = weight of rod  we = Water Content, percent  oe = Organic Content, percent						
Depth	Sample Informatio	Recovery	Time	Sample Description and Classification		Analytical Collected (Y/N)	Elevation				
	16-5B-444-0/10-XX	4.0 	1510 1515	0-0:0 Asphalt 0-0:6 Brown fine to coarse scal and a true of selo (Asphalo solymode). Woist. 0.6-4.0 Shills reddel brown to light low facto we did some of site	peul with 20.3	SP	Yes				
5				4-5 Brown fine to median sound with a a true of sit. Very moist. No o'mosuladors.	=0.4 =0.2	5P					
	Runt 2 5-10 Oc-58-449-6/8-X	4,4 **	1500	5-7.5 Brown to dechlorouse frie to media sund with some to althe con Wet with some luyeing conser ground luyer decher colored. Slight oder (netralic? 7.5-8 hight brown cololles and gra	gare = 16,8	5P 6W	Ye5				
10		24 //		fite tresarse send, m 5-9. 5 Brownto dark brown and ground with a little 4.5-10 Olive brown fine to c gre growel and some to a little 5 to Veyon sto	uel	GW GUY		·			
	Bunt 3 10-15 0x-58-449-11/13-x	4.8 xx	1600	10-10:5 Brown Frieto medium and some course send and wort. 10.5-13' Brown to chie low sundand grandwife a 1,46 cololles. Slight unusual dor	of	5 <i>P/S</i> W	W				
Not				13-15' Colphles.	= <del>17?</del> -(	D					
IAOLE	es Suls from 11-13	" were	very.	warm to how							
Strati and u	fication lines represent approximate bounder conditions stated. Fluctuations of the conditions of the	ndaries between groundwater (	en soil types, nay occur due	to other factors than those present at the time measurements were made.	Page /of Boring: $\leq 6$		149				
	*			i i							

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmungton WA  Client: Olin	Boring: SB-449 File No.:						
Oper Logg Ched Date Borir	ractor: Boarthunguator: John Crafte ator: John Crafte led By: Jenn Rawe ked By: CTM Start/Finish: 8/27/09 ng Location: Aven a Elevation':	ોર્નિય	Bore Hol Auger ID Sampler: Hammer Water Le	Method: Roto Son ic e ID/OD: 47/6"00 Tány custy/6"00 outross MOD: NA  : Dave Chip man Wt/ Fall: Motors vel3: 7.6 and visin 6'BLS bored on souts.	Definitions:  S = Spin Spoon Scample U= Thin Wall Tube Sample R = Rock Core Sample V = Insim Vane Shear Test q, = Unconfined Compressive-Strength (pot) with = weight of 140 lb. hautmer wor = weight of 140 lb. hautmer wor = weight of rock we = Water Content, percent on = Organic Content, percent						
Depth	Sample Information	Recovery	Time	Sample Description and Classification		Unifled Classification Analytical Collected	(Y/N) Elevation				
IS	Runt44 15-18-15	3.7	/600	16.5 Brown to the brown fine to cook same and grand with some willes little site. Wet, stight other. 16.5-17.5 Of he to the gray fine soul a some site and medianto coarse sund and trans of cutiles 17.5-18.5 Coredpince of such and polver	your 22.8	GW GW					
N				Estimate top of hedrochat 17.5 BG Bottom of bong = 18.5 BGS	5						
Note	es.										
Strati	fication lines represent approximate;	boundagins bet	ween soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 1 s	2					
and u	ulter conditions stated, Fluctuation	of graffindwate	r may occur due	e to other factors than those present at the time measurements were made.	Page $2.6$ Boring: $5.6$	-449					



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.: **SB-449** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Dale Duscher Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe

Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 8/25/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 1** Water Level: 6.5' bgs measured in borehole

Ref. Elevation:

**Definitions:** 

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-449-0/1.0-XXX	4.0	1510 1515	0-0.2' Asphalt	0.2		YES	
	OC-3B-449-0/1.0-AAA		1313	0-0.6' Brown fine to coarse sand and gravel with a trace of silt (Asphalt sub grade). Moist.	0.2	SP	1123	
				0.6-4' Slight reddish brown to light brown fine to medium	0.3			
				sand with a trace of silt. Moist.	0.1			
				4-5' Brown fine to medium sand with a little to a trace of silt.	0.1			
				Very moist.	0.4	SP		
-				No unusual odors.	0.2			
5		4.0	1515		0.2			
	Run #2 5 - 10	4.9	1515	5-7.5' Brown to dark brown fine to medium sand with some to a little coarse sand. Wet, with some layering. Coarser	0.4	SP		
				grained layers are darker colored. Slight odor ("metallic").	0.4	51		
				7.5-8' Light brown cobbles and gravel in fine to coarse sand.	16.8	GW		
	OC-SB-449-6/8-XXX		1520	Moist.	150		YES	
					15.3	CIV.		
				8-9.5' Brown to dark brown fine to coarse sand and gravel with a little silt. Wet.	2.8	GW		i
				9.5-10' Olive brown fine to coarse sand with some gravel and	2.0	GM/G	W	
10				some to a little silt. Very moist to wet.	9.6			
	Run #3 10 - 15	4.8	1525	10-10.5' Brown fine to medium sand with some coarse sand				
				and traces of gravel. Wet.	270	SP/SW		
	OC-SB-449-11/13-XXX		1600		180		YES	i
				10.5-13' Brown to olive brown fine to coarse sand and gravel	160			
				with a little silt and traces of cobbles. Slight unusual odor.	95	GW		
				13-15' Cobbles.				
					195			
15								1
Not		l		<u>I</u>	I			

Jeny 72. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**Boring:** 

**SB-449** 

	<b>MACT</b>	EC		Project: Location:	Wi	ilmingto/	_	erfund Sit	te		Boring:		SI	3-44	19	
				Client:		lin 10700001	16.00				File No.	:				
C1	mantani Danet Laurencen		Duillin a M	lathard. Data		10709001	16-09				D (" '4'					
	ractor: Boart Longyear ator: Dale Duscher			lethod: Rotos e ID/OD: 6" O		ic					Definitions S = Split Spoon S	ample				
	ed By: Jerry Rawcliffe			)/OD: 4 7/8" (		nnor ca	eina/6"	OD outo	r casino		U = Thin Wall Tu R = Rock Core Sa	ample				
	ked By: CTM		1	Dave Chapm		illei ca	silig/0	OD Oute	i casing		V = Insitu Vane q <sub>p</sub> = Unconfined		Strength (	psf)		
_	Start/Finish: 8/25/2009			Wt./ Fall: NA							woh = weight of wor = weight of r	140 lb. hamn				
_	ng Location: Area 1			vel: 6.5' bgs i		sured in	n boreh	ole			wc = Water Conte oc = Organic Con	ent, percent				
	Elevation:		mato. 20	von old byo	mouc	ourou n		0.0			-	, p				
	Sample Informat	ion														
Depth		Recovery	Time		s	Sample	Descrip	otion and	d Classif	ication		PID (ppm)	Unified Classification	Analytical Collected	(Y/N)	Elevation
	Sample No.											3.8	<u>⊃ ∪</u>	4 O		Е
15	Run #4 15 - 18.5	3.7	1600	15-16.5' B							avel	3.8	CW			
				with some 16.5-17.5' medium to	Olive	e to oliv	ve gray i	fine sand	l with so	me silt and	I	0.9	GW GM			
				17.5-18.5'	Core	ed piece	of rock	and pul	verized r	ock.		3.2	ПП		П	
				Estimate to				5' bgs.								
20				Bottom of	borin	ng = 18.	5' bgs									
25																
Note											Jeny			whj	No.	/
	fication lines represent approximate nder conditions stated. Fluctuations										Page Boring:	2 of 2		3-44	Q	
											Journing.		01	<i>/</i> - 77	,	

	MACTE		Project: Olin Chemical Superfund Site Location: Wilmington, M.T.  Client: Olin  File No.:	B-6	-450					
Chee Date Bori	tractor: Board hong ye rator: Greg Jallian Jeged By: Tenn Rawchill cked By: Cth Start/Finish: 49909 ng Location: Aren 4 Elevation!:	Sampler Hammer	Wt. Fall: NA  well 3: 25 BGS besed on soil of the second some well well continued from the second some soil of the second some second some well as the second soil of	S = Split Spoon Sample U = Thin Walf Tube Sample R = Reck Core Sample V = Insitu Vane Shear Test q = Unconfined Compressive Strength (psf) web = weight of 140 b. harmer						
C Depth	Sample Information  Sample No.	Recovery 1330	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation				
	04-55-450-0/1.0-2		0-2.5 Darkbonny hine und PID=0.5 and ground with a trase soil.) 2.5-3.5 Darkbon 4 and all the from to a cost of s	5P	Yes					
5	Runt 2 5-10 3	.8 1350	3.5-5 Very light gray pulverized wontrett. =1.6 (Sidewall of Foundation). Bry. = 2.7	1						
			6-7 Brown to clerk brown with toraces of coarse sur and cleris, wood Grayments an decomposed organics 7-9 Brown to light yeddesh, brown wedings sand with a trree	se						
10	Run#3 10-15 3		some areas with redshirt 1) to wet. 9-10 Brown to light brown ne 16-13' hight brown media to fine soul p10=0	sp	Yes					
			with troves of course send. Wet. 13-14 Shiply reddict brown median to fine such with a trave of course send. Wet.  14-15. Brown median sundwith some overse send	50						
i C	<u>ss</u>		14-15 Brun miden sundwith some correspond and a lible five sandand a trone ofegravel. =0 Wet. =0	SP						
	Angle Borny -	ider for	notation of 4							
Stratifi and y	ication lines represent approximate boundar der conditions stated. Fluctuations of grou	ries between soil types, ndwater may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.  Boring:	of 3						

	At an -			Project: Olin Chemical Superfund Site				
	MACT	EC		Location: Wilmington, Mt.	Boring: 50	3-4	50	
				Client: Olin	File No.:			
Cont	ractor: Boart home	yerrur	Drilling I	Method: Ruba Sanic	Definitions:			
Oper	ator: Grey Hallida	30	Bore Ho	le ID/OD: (0° (2)()	S = Split Spoon Sample U = Thin Wall Tube Sample			
	led By: Terry Rawa	litte	Augerit	100: 47/800 inner casing/6" OD over casing	R = Rock Core Sample V = Insitu Vane Shear Test			
_	Start/Finish: 9 9 09		Dample	Wt/Fall: NA	q <sub>p</sub> ≈ Unconfined Compressi woh ≈ weight of 140 lb. han		(psf)	
Borir	ng Location: Aven 4		Water Le	evel3: 7-8 BES Busedon soils describes.	wor = weight of rods we = Water Content, percen			
Ref.	Elevation¹:			6-700	oc = Organic Content, percen			
	Sample Informat	ion						
						ion		
Depth	O-male Me	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
15-	Run #4 15-20	3.5	1430			5 5	Analy Colle (Y/N)	<u><u><u></u> <u><u></u> <u> </u></u></u></u>
	TVV P4 15-20	213	1730	35000				
				benomes slightly conser u . Redd stained layer at = 16.58	ish ("ron")	313		
				300000000000000000000000000000000000000				
$\vdash$			-					
			<del> </del>	17.5-20 higher to num do reached to num u sand with threes of fine and course s Wet. No unusual odors deseated,	edin			
	,			like Many and alice de the	enel, 20	Sp		
				work in a contract of the cont		T		
20					20			
	Run#5 20-25	4.3	1500	30-21 Brown meding sound with a little co	UNSE PIDEO I	SP	77	
			<del> </del>	sixul and a little to tras od fine sixual.	7.00-0.1		1 1	
n				21-22 Parkbrown to olive brown to dice med consise sand with some fine said and	ingr			
				aundowases of cushes and sile. West tot	ta. a	G	1	
				22-25 Darkoline to olive byour Fire t	20.3			
H			ļ	a little to atrove of site wet massive.	c. A. beloca		- 1	
				a little to a truze of site. Wet massive	200 100 5 CO	1		
25			<del> </del>		<i>⊅ Q</i>	14	/	
	Punto 25-30	2.2	1545	25-30 Dark stine to date stine 1	1 . 0.0 -	7000		-
				brown friets course small and	(11/2 / 10)=0			
			<u> </u>	15-30 Darkoline to dorkoline gray to o brown Frieto course sand and grave some cobbles and a libeto atraceors	il.			
			<del> </del>	Wet, massive No unusual oclors date	4/ 20	12.00		
				100 0010 Syal outors dose	efect,	4	1	
30								
Note			1					
	Angle brown	(450)	) vu	les foundations.				
,						•		
				•				
04-470	cotion lines are		•					
anglin	der condition stated. Fluctuations	oundaries betw of groundwater	een soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of	3		
1	eny Karly	4L						
1					Boring: <i>ろB‐</i>	456	)	

MACTEC		Project: Olin Chemical Superfund Site  Location: Wilmington, MV.  Client: Olin	Boring: S	B-	450	)
ed By: Terry Rawcliffe ked By: CTM Start/Finish: 919109 g Location: Area 4 illevation!	Bore Ho Auger ID Sampler Hammer Water Le	le ID/OD: 6°00 MOD: 47/800 inner cacing/6°00 orter cacing E Dave Chapman Wt. Fall: NA wel3: 7-8'BGS Based on soits observations	R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressi woh = weight of 140 lb. han wor = weight of rods we = Water Content, percen	ve Strength ( nmer	(psf)	
Sample Information						
Sample No.	Time			Unified Classification	Analytical Collected (Y/N)	Elevation
KIME / 36'5\ 4,0	7635	131 - C. Llasta Divide angenteed and it is him a		611)	,	
		32-35 Olive to stine long of Giroto		GW	W 405	
10x#8 35-375 0	1655	to 37 5th work very hard material Estimate top of bedwork - 35.0 1635.5	N	y		
		hinear Borehule Factory Estimated op of roch & 27'865	e			
		7019 70-8 063				
4 1 20						_
Bnglubring (45	~) uu	les tomdetion				
	actor: Board Long years stor: Grey Hall day sed By: Terry Cawcliffe sed By: CTM Start/Finish: 9999 g Location: Area 4 levation!  Sample Information  Sample No.  S	actor: Board Long year Drilling Potor: Grey Hall way Bore Hoted By: Terry Cawcliffe Aughor Brand Barry Finish: 9909 Hammer g Location: Area 4 Water Le levation!  Sample Information  Sample No.  Samp	Client: Olin  actor: Boort hong yesal Drilling Method: Roto Sonic  tor: Greathalliding Bore Hole ID/OD: 47800 inner casing 16000 over casing  ad Bystery Rawclife Associated Association of the Consumant of the C	Client: Olin File No.:  actor: Boart have year Drilling Method: Rat Sonic tor: Grey Halling Bore tole 10/100: 6°00  all Bystern Lawelith Abor 1500: 47000 have casing /6°00 over casing /6°00 ov	Client: Olin  Client: Olin  Core Hall dell Bore Hole DIOD: 400  Bore Hole DIOD: 400  Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole DIOD: 400  Core Hall dell Bore Hole BIOD: 400  Core Hall dell Bore Hall	Client: Olin  Client: Olin  Client: Olin  Core Hallwer Bore Hole (DOD): (200  Bore Hallwer Bore Hole (DOD): (200  Bore Hallwer Bore Hole (DOD): (200  Bore Hallwer Bore Hole (DOD): (200  Bore Hallwer Bore Hole (DOD): (200  Bore Hallwer Bore Hole (DOD): (200  Bore Hallwer Bore Hallwer Bore Hole (DOD): (200  Bartorinish: Alf And Bore Bore Bore Bore Bore Bore Bore Bore



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.:

**Definitions:** 

**SB-450** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Greg Halliday Bore Hole ID/OD: 6" OD

Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Logged By: Jerry Rawcliffe Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 9/9/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 4** Water Level: 6-7' bgs based on soils observations

Ref. Elevation:

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.8	1330					
	OC-SB-450-0/1.0-XXX		1340	0-2.5' Dark brown fine to coarse sand and gravel with a trace	0.9		YES	
				of silt (Loamy topsoil).		SW		
				2.5-3.5' Dark brown fine to medium sand with a little to a	0.2			
				trace of silt. Moist.	0.1	an.		
					0.1	SP		
				3.5-5' Very light gray pulverized concrete. (Sidewall of foundation). Dry.	1.4			
5					2.7			
	Run #2 5 - 10	3.8	1350	5-6' Gray to light gray pulverized concrete.	2.7			
	114111112 5 10	2.0		3-6 Gray to light gray purvertized concrete.	0	SW		
				6-7' Brown to dark brown fine to medium sand with traces of coarse sand and some organic debris. Wood fragments and very dark brown decomposed organics.	0	SP		
	OC-SB-450-8/10-XXX		1355	7-9' Brown to light reddish brown fine to medium sand with a trace of coarse sand. Some areas with reddish (iron) staining.  Very moist to wet.	0		YES	
					0	SP		
10				9-10' Brown to light brown fine to medium sand. Wet.				
	Run #3 10 - 15	3.7	1405					
				10-13' Light brown medium to fine sand with traces of	0			
				coarse sand . Wet.		SP		
				13-14' Slightly reddish brown medium to fine sand with a	0			
		1		trace of coarse sand. Wet.	0			1
				10.1417	0	SP		
				13-14' Brown medium sand with coarse sand and a little fine sand and a trace of gravel. Wet.	0	51		
15								
Note		I .	<u>I</u>		I			

**Notes** 

Angle boring under foundation at  $\sim 45^{\circ}$ 

**Page** 1 of 3

**Boring:** 

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

**SB-450** 

Jeny 72. Rawlffe



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.: **SB-450** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Greg Halliday Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 9/9/2009 Hammer Wt./ Fall: NA

Boring Location: Area 4
Ref. Elevation: Water Level: 6-7' bgs based on soils observations **Definitions:** 

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of 140 lb. name wor = weight of rods wc = Water Content, percent oc = Organic Content, percent

	Sample Inform	ation						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 20	3.5	1430					
				15-17.5' Light brown fine to medium sand . Wet, becomes slightly coarser with depth. Reddish (iron) stained layer at ~16.5' bgs.	0	SP		
				17.5-20' Light brown to reddish brown medium sand with traces fine and coarse sand. Wet, no unusual odors detected.	0	SP		
				autos mio and course sailar in et, no anasaur odors detected	0			
20								
	Run #5 20 - 25	4	1500	20-21' Brown medium sand with a little coarse sand and a little to traces of fine sand.	0.1	SP		
				21-22' Dark brown to olive brown to olive medium to coarse sand with some fine sand and gravel and traces of cobbles and silt. Wet, "rotten" odor.	0.7	GW		
				22-25' Dark olive to olive brown fine to coarse sand and gravel with some cobbles and little to a trace of silt. Wet, massive.	0	GW/G	iM	
25					0			
	Run #6 25 - 30	2	1545	25-30' Dark olive to dark olive gray to olive brown fine to	0			
				coarse sand and gravel with some cobbles and a little to a trace of silt. Wet, massive.	0	GW/G	SM	
				No unusual odors detected.	0			j I
30					0			]
Not								Щ_

Angle boring under foundation at  $\sim 45^{\circ}$ 

**Page** 2 of 3

**Boring:** 

**SB-450** 

Jeny 72. Rawhffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA  Client: Olin 6107090016-09	Boring: File No.:		SI	3-450	
Con	tractor: Boart Longyear		Drilling N	lethod: RotoSonic	<b>Definitions:</b>				
	rator: Greg Halliday			e ID/OD: 6" OD	S = Split Spoon Sar U = Thin Wall Tub				
	ged By: Jerry Rawcliffe		Casing IF	D/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core San	nple			
	cked By: CTM			Dave Chapman	V = Insitu Vane Sh $q_p = Unconfined Confine$		Strength (	(psf)	
	Start/Finish: 9/9/2009			Wt./ Fall: NA	woh = weight of 14 wor = weight of ro	0 lb. hamn		•	
					wc = Water Conten	t, percent			
	ng Location: Area 4 Elevation:		water Le	vel: 6-7' bgs based on soils observations	oc = Organic Conte	nt, percent			
Kei.	1								
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
30	Run #7 30 - 35	4.0	1625			3.8			
				30-31' Dark gray fine to coarse sand and gravel with a litt silt and cobbles. Wet.	le	0.9	GW		
				31-32' Dark olive gray to dark olive fine to coarse sand an gravel with a little silt and cobbles.	d	2.8	GM		
				32-35' Olive to olive brown fine to coarse sand and gravel with some cobbles and a little silt. Becoming finer grained		3.2			
	OC-SB-450-33/35-XXX		1655	silty at bottom of interval				YES	
35									
	Run #8 35 - 37.5	0	1655						
				Encountered hard material at 35'. drilled to 37.5 through vehard material. No recovery.  Estimate top of bedrock = 35 to 35.5' bgs.  Bottom of boring = 37.5' bgs. (Linear borehole footage)	ery	ПТ	Ш	Ш	
40				Actual depth (due to 45° angle) Estimate top of rock ~27' bgs. Bottom of boring ~28' bgs.					
40									
45									
Note	<u>es</u>		<u>'</u>						
	Angle boring under f	oundation	1 at ~ 45º		Jeny	<i>7</i> <.	Ra	while	1
				s, transitions may be gradual. Water level readings have been made at times le to other factors than those present at the time measurements were made.	Page	3 of 3	3		

Boring:

**SB-450** 

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	100		I a transfer to the contract of the contract				
1	MACTEC		Location: W. musten, W.	Parinas S	R-1	451	
					10	121	
			Client: Oliv	File No.:			
Con	tractor: Root have	Drilling I	Method: Right Some	Definitions			
One	rator: Cula Coca Dia	Bore Ho					
				U = Thin Wall Tube Sample	÷.		
Logg	Jea By: Jenny Kawaita						
						(psf)	
Date	Start/Finish: 8128129			woh = weight of 140 lb. han			
Bori	ng Location: 1Apen4	Water Le	evel3: 5-6 Based on cruts.		4		
Ref.	Elevation <sup>1</sup> :						
	Sample Information						
	Sample information						
1					6		
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1 -	j je	i	Sample Description and Classification		چ چ ا پ	te iii	ō
1 🕏	6	2			Fie	اء ق خ	/at
Depth	Sample No.	<u> </u>			in in	E O S	<u>6</u>
-			0 -0 0		20	40C	M.
1 .		1 1	10-0,5 Brown him such with some site.	ul PINEO	ا ا		
1	06-58-451-0/1.0 -1222	1120	a little ground and well a to coarse som	¥ _		Vos	
ł			Dry Out to thes. (Trepsoils)	**		^ /	
1			1 -1 6	1 20			
1		<del> </del>	D. 5- 2.5 Will asker to showing o drawler	1 Byshin A	. /		
_		ļ	to dech bring struct they have is med	my smil	154//		
1		<u> </u>	and grandwith tomes of coarse send a	ed silt-	/ /	[ ]	
1	0C-SB-451-2.5/4,5-XX	1140	Dryto avist.	-0.7		ا بندا	
1			2.5-5 housed time to median sad- Brown	to light	الم ما	14es	
1		<del>                                     </del>	houn to class brown to bluk works it	a destilling W	rocur		
5			2.8-3.2 Oark to run byer with Presments of bla.	u plas = 20	10		
			45-4.7 Vanyduck loven to black organic las	er.	151		
1	Runt 2-5-10 4.4	1115	5-5,5 Brown Ris to medery surlantly a top	of own			
1			SID Here were		1 1		
1			C= > 0 10 01 1 Leodomodine Surla	ith a true			
1		<del> </del>	of SIN I les was to be and	20.1	SP		
1							
		1	7-8 BEING with dute acres south finducion co	#- 5tus 20			
			Lie to what a long to	/ 4	-		
1		<del> </del>	The To menin sunday a true of sit.	west.	1 1		
1		<del>                                     </del>	8-10 Brun to light brown fine to me	elien 20.2			
1			Sourland traines of coorse sunland (1)	the wort			
1							
10			100 unusual odors detected	201			
1,0	D. 12 12-15 29	4123					
	10001-3 10-13 311	1100	10-15 Brown to light brown fine to	PIDZO			
1			corre sund with a trace of silv.	Not			- 1
1		İ	L-LC O		50		
1			stratitued with course graines layer	, and 20.1	121		- 1
1		<del> </del>	some the grined luyers with times	ofsilt.			- 1
-		<del>                                     </del>			<b>├</b>		
1				7.0			
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15				20.2			- 1
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Note	es P	1	1. 1. 1. 1. 1 .				
1	* Encounteren place	y of w	int appears to we orach plasor - inin	wanpears	NO 5	e	- 1
1	10 10 1	1. 1	dealer (25'acc)	//			- 1
	antivracine conl	was 1	bigand, (Tro 1002)				
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Came!	faction lines mercent on						
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	yeng rancy			Parina. CA	U+-	f:	
ئـــا				Boring: <i>SB</i> -	75	/	- 1

	MACT	EC			Boring: $SB$ File No.:	-4	51	
Oper Logg Ched Date Bori	tractor: Bount Nong rator: John Crued ged By: Jerry Runch cked By: CTM start/Finish: 8/28/09 ng Location: Aven Y Elevation!:	4	Bore Hol Auger ID Sampler Hammer	e ID/OD: 62   Signal on sold   Signal on	Definitions:  S = Split Spoon Sample  U = Thin Woll Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q <sub>p</sub> = Unconfined Compressive Strength (psf)  weh = weight of 140 lb. hammer  wer = weight of rod  we = Water Content, percent  c = Organic Content, percent			
Kei.	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run#4 15-20'	4.4-	1235	Sandwith a little to a true wet, somedy he layery we avoor layer. 18-18-5 Reddish brown fine to coarse some framed with trues of cobbles. Wet Slight	radurzo	5 <i>P</i>		
20	0C-58-451-18/20		1250	18.5-20 Olne to obseloroun Riceto coars and consultath a little silt and traces of colless. Wed.	20,2	GW Chifoi	yes n	
25	11 cm #5 20-26	51	1250	to meden sund un H grand und coorse sur a little to troves of silband coolbes. We 23-25 Gray to dark gray has to meding so with same sitt and grand and a little wet mussile by coolbes and roch fryme.	oveles.	i∙m Gω	- slight etalic	ut odor
				Estrinate top of bedrach = 25'B65 Bottom of borry = 26'B65		-		
Note								
Strai	Soils are warm pit of water f	ham h	veen soil types	e to other factors than those present at the time measurements were made.	Page 2 of Boring: 56		•	

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MACTEC	Project: Olin Chemical Superfund Site  Location: Wilmington, M.T.  Client:	Boring: 5B-452 File No.:				
Lat X discount of the second second						
	lling Method: Runsonic	Definitions:				
	re Hole ID/OD: じゅつの	S = Split Spoon Sample U = Thin Wall Tube Sample				
ogged By: Terry Rawliffe A	geriDIOD: 47/800 inner cusing/600 orter casing	R = Rock Core Sample				
Shecked By: CTm Sa	mpler: Maya Massion	V = Insitu Vane Shear Test  q₁ = Unconfined Compressive Strength (psf)				
Pate Start/Finish: 8 31 04 Ha	mmer Wt./ Fall: NA	woh = weight of 140 lb. hammer				
	ter Level 3:5-6' BGS Bussel on Soits -	wor = weight of rods we = Water Content, percent				
tef. Elevation :	3010	oc = Organic Content, percent				
Sample Information						
Sample No.	Sample Description and Classification	Unified Classification Analytical Collected (YN)				
1 2	25 0-0.7 Brun to light browny fine to	1102 0				
	30 media sunt with a life site coarses	ud and Yes				
17 170 110	grand. Day to moist (Tops with fill)	100				
	0.7-1.8 higher brown to brown fine to me	Music = 2.1				
	C. I Water half to be a	( A was do a )				
	sund. Moist, some south braden of durhant	Tract CHUYEA				
	lyers.  i.f-J. Very dark brown Dolveh fine Sur  organic me treat (root fibers, plus hopeds) f  d. 1-5 Brown hie to wellier such with  sitrand course sund Very Mast No Muse	luible sp				
	- acoust metrial (root fileers, plent fraguents)	benty lyer				
1	- 1 1-5 Brown Rie Douglass and with	hares of				
	- sitrand course such Very us sict No	11 7 2 2				
5	311 35 700 VAIOSI	woders, 0,3				
Rumpa 5-10 4.2 10	30 5-75 Bonne tolich & brown Fire to wed	millOT 0 50				
	and with some lines and will	La la la la la la la la la la la la la la				
05-50-452-5/7-XXX 10	30 5-7.5 Boxun tolight brown Fire towed sund with some layers containing coarse 7,5-8 Brown Give to a ogsessmithan agra with the of silt and others.	med 201 Yes				
	7,5-8 0 min flue to cog section cust on	102 Jun				
	- Wilderson Di All ancodors	SW/GW				
Quit 3 10-16 5.9 10	5-10 Clusto cline brown his togoare of grand with sometra a little cooling and little its vassain. Howeverlander 50 10-11.5 Brown to olive brown fine to nedw such with some coarse and and grand.	a 20 /641				
	T 7					
	11.5-15 Olivebrum to olive to olive gray f	mé zoit				
	to coarse good and ormularite a little s	it arl 16mg				
	done of collect 11	704				
	drives of colles. Very moist to wet, muss	sue 20.1				
OC-50-452-13/15-200 11	DO The same the same	=0.7 4es				
VC-70-134-17/15-701/	Encountered had motaid at 15'365	=0.7				
	Proceeding Duraged - 1 15 / 2006					
	( 15 13 13 13 13 13 13 13 13 13 13 13 13 13	20.9				
<u>otes</u>	Bottom of boring = 16'B65.					
	il types, transitions may be gradual. Water level readings have been made at times ccur due to other factors than those present at the time measurements were made.	Page / of /				
Jeny Kanti		Boring: 58-452				
U () 1/1 V	PAPER CONTRACTOR					
	and the second s					

	MACT	EC		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin 6107090016-09	Boring: File No.:		SB	3-452	
	tractor: Boart Longyear			Method: RotoS	<b>Definitions:</b> S = Split Spoon San	nple				
	gged By: Jerry Rawcliffe Auge ecked By: CTM Samp		Auger ID		" OD inner casing/ 6" OD outer casing	U = Thin Wall Tube R = Rock Core Sam	nple .			
				: Dave Chapm	an	V = Insitu Vane Sh $q_p = Unconfined Co$	ompressive		(psf)	
	Start/Finish: 8/31/2009			Wt./ Fall: NA	u.i	<pre>woh = weight of 14 wor = weight of roc</pre>	is	ner		
	ng Location: Area 4				5-6' bgs based on soils	wc = Water Content oc = Organic Conte	t, percent	t		
	Elevation:		1			1	•			
	Sample Information	tion								
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.6	1025	0-0.7' Brow	n to light brown fine to medium sand with a li	ttle				
	OC-SB-452-0/1.0-XXX		1030	silt coarse sa 0.7-1.8' Lig	and and gravel. Dry to moist (Topsoil Fill). ht brown to brown fine to medium sand. Mois cation of darker and lighter colored layers.		0 0.1		YES	
					ry dark brown to black fine sand with organic of fibers, plant fragments) Peaty layer.		0.0	SP		
5					n fine to medium sand with traces of silt and . Very moist, no unusual odors.		0.1			
	Run #2 5 - 10	4.2	1030				0.5			
	11011112 0 10	r. <i>L</i>	1550	5-7.5' Brow	on to light brown fine to medium sand with son	ne	0	SP		
	OC-SB-452-5/7-XXX		1045		uning coarse sand . Wet.				YES	
				7.5-8' Brow	n fine to coarse sand and gravel with traces of	silt 0.1 SW/GW 0.1		3W		
					to olive brown fine to coarse sand and gravel o a little cobbles and a little silt. Wet, massive. odors.		0	GW/0	 GM 	
10				1			0.1			
	Run #3 10 - 16	5.9	1050	10-11.5' Br	own to olive brown fine to medium sand with					

15 Bottom of boring = 16' bgs. 0.9 Notes 0.9

11.5-15' Olive brown to olive to olive gray fine to coarse

sand and gravel with a little silt and traces of cobbles. Very

some coarse sand and gravel. Wet.

Encountered hard material at 15' bgs.

Estimate top of bedrock is ~ 15' bgs.

moist to wet, massive.

Faint ammonia-like odor

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

1100

OC-SB-452-13/15-XXX

Page 1 of 1

Boring: SB-452

Jeny 72. Rawliffe

0.1

0.7

0.1 GW/GM

YES

	Te di di la constanti di la co			
MANACTEC	Project: Olin Chemical Superfund Site			
MACTEC	Location: Wilmington, MA.	Boring: S	R-UCR	
		File No.:	7 133	
	Client: Oli u	File No.:		
75004	A 6 . O .			
Contractor: ZEROA Drilling	Method: Direct Push	Definitions:		
	ole ID/OD: 1.54/3" (estrusse)	S ≃ Split Spoon Sample U ≃ Thin Wall Tube Sample		
	D/OD: NA	R = Rock Core Sample		
Checked By: Chris Mannel: " Sample	r: Dane Chapman	V ≈ Insitu Vane Shear Test q, ≈ Unconfined Compressi	ve Strength (mcf)	
	er Wt./ Fall: As A	woh = weight of 140 lb. han		
Boring Location: Area   Water	_evel <sup>3</sup> :	wor = weight of rods we = Water Content, percen	ıt.	
Ref. Elevation¹:		oc = Organic Content, perce		
Sample Information				, m
			T ET T	
			Unified Classification Analytical Collected (Y/N)	
2	Sample Description and Observite of		d al cat	ء
£   8   a	Sample Description and Classification		C (# 1 # 8	ţį
Depth Samble No.			Unified Classific Analytic Collecte (Y/N)	Elevation
			Unified Classifica Analytical Collected (Y/N)	Ü
Sleene#1 0-5 3,1 1500	10-1.5 Dark brown toblach vomenic	DINZA		
UC-40-453-00/1.0-KXX 1625	delone wet desired laws on its of	Ala marks	Pr Yes	
	and the state of t	I DI		
	detoris - Wet desuged, Jewes rosts, pla becomes more desuged Pries granes	weindyk.		
	1.5-3.5 Brown to dothe brown fine	but Is		
	The state of the s		100	
	Sundand organics.	20	SP	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
UC-SB-453-1.0/GN-XX 1600	3,5-5 Brown to dive brown Fire to coo	use said	Yes	
	and smul with troves of colles a	ed silt	1 1 1	
5	3.5-5 Brown to die brown Freto coo and grand with troves of colles a Wet, massive	Ca. Tal	Guyan	
Sleene# 2 5-6 0.7 1541	1.1 0.		1 /9"	
	TO DOWN TO SIMBOWA FINETO	USE PIDED.		
	- sul antyroul. Wet, massing	1 5 011		
	-			
	4			
	Made 9 allements 12 a. 1 1	1.,		
	The state beyon	d 6 most		
	Made 9 a Hempts to penetrate beyon attempts met refusal at 34'B65.			
10	Botom of born = 6'BCS			
	00 100 100 11 - 0 DC 5			
	_			7.7
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	-		. N	
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5				- 1
Notes	- 0			
Collected suctains similaries	le (0-1') usug sperle, so boul + 55 50001.			- 1
200000000000000000000000000000000000000	2 ( 1 0 soug spood, 35 bount 95 5000).			- 1
				- 1
				- 1
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				1
				- 1
Stratification lines represent approximate boundaries between soil type	s, transitions may be gradual. Water level readings have been made at times	-		
and under conditions stated. Fluctuation of grandwater may occur d	e to other factors than those present at the time measurements were made.	Page / p	41	
1) 0000 (1/00 1/11/2			•	
Jelly Courtil		Boring: 58	-UT?	
74				
		Tolling. 5 0	733	

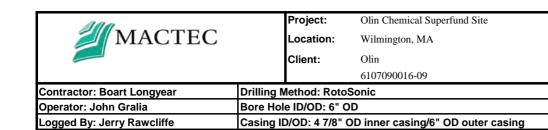
Com	MACT		Drilling 8	Client: Oliv	Boring: S	B-4	154	
Con	tractor: Boart hange rator: John Gralia	w-	Born Ho	Hethod: Kotu San i C e ID/OD: 47/6"010 zámy custy/6"00 suderons /OD: NA	S = Split Spoon Sample			
	ged By: Jon Rawc		AugeriD	uno Ar A	U = Thin Wall Tube Sample R = Rock Core Sample	:		
	cked By: CTM	41. 0 .	Sampler	Dave Chepman	V = Insitu Vane Shear Test			
	Start/Finish: 8 270°	1	Lammar	Wt./ Fall: M	a = Unconfined Compressi with = weight of 140 lb. han		(psl)	
	ng Location: Areu			evel3: 25' BGS busedunsvils	wor = weight of rods			
	Elevation <sup>1</sup> :		Iveater Co	idi. 23 BOS IBURGAIPASTIIL	we = Water Content, percent oe = Organic Content, percent			
-		•						
	Sample Informat	ion	1			-	,	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	1200# 0-5 00-5B-454-0/1.0-	3,7 XXL	1710	0-1.5 Asphabe and RR good 1.5-5.0 hight brown to sound with a draw of sile Very moist, Berones duples bred a	weed	5P	Yes	
5				Verymoïst. Berones ducher breder stryboly finer grained with depth.	=0.5			
	Cut 2 5-10	4.8 -MA	1715	5-9 Brown to slight by reddich brown (win struced) fine to wedlin soul wi little to a truce of coarse soul, wet, reddich brown laser at 35.5-6, 2 1365, Bei slightly ovarser with depth	PIDZUES the a ZU. A COMES = 0.3	Sp	Υs	
ю				9-10 Brown to olive brown Fine to consum and grown with a trave of 576 West, mussins. No unusual odors.	use 2012		J	
	Rub 3 10-15	4.8	[715	10-13 Olive brown to darko we frie to course sund and a little silt and trues co	nesse	Gwy 16w		
13-				13-15 high gray to light olive gray gre and brut ocobre sund with a libb and trues of silt. Most massue.	vel 1.1 collides	GW		
15								
Note								
				to other factors than those present at the time measurements were made.	Page of	-	u	

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Witnington M  Client: Olin	Boring: $SB$ File No.:	-43	54	·		
Cont	ractor: Boart hunge	w	Drilling N	Method: Rotusonic	Definitions:					
	ator. John Gralia		Bore Hol	e ID/OD: 47/6" 00 inne cury 6000 outerons		S = Split Spoon Sample U = Thin Wall Tube Sample				
Logg	jed By: Jen Rawe	144	Auger ID	IOD: NA						
	ked By: CTM		Sampler:	: Dave Chepman	veStrength (	(psf)				
	Start/Finish: 8/27/00	1		Wt/ Fall: MA	woh = weight of 140 lb. han wor = weight of rods	unci				
	ng Location: Apen 2		Water Le	vel3: 25'BGS based on sods	we = Water Content, percen					
Ref.	Elevation <sup>1</sup> :				oe "Organie Content, peron	<i>T</i>				
	Sample Informat	tion	·		<u> </u>		, , ,			
Depth	Sample No.	Recovery	Time	Sample Description and Classification			Analytical Collected (Y/N)	Elevation		
15	Run #4 15-20	4.9	1735	15-16.5 Olive to olive brown Pris to Coop	CO PIDZ 2.1	64				
				sunt and growel with some to alittle si	to Mixed:	1GU	p l			
			•	1 = 001	= 5					
				16.5-20 high gry to diveto derligo	70					
				grand and fine to course send un	76					
				little to homes of college and traces	of 21.3		-			
				silt. Muist to slightly moist. Slight lay appearance with different colored los of similar material.	erell	CW				
	OC-5B-454-18/2U-	xdx	1745	appenrance with different colored	mes 2210		Ye !			
				of similar material.						
20					20.5					
	Run #5 20-21	0	1750		0 6 1					
				Encountered hardwatered at 20	Wulker					
				to 21'						
			ļ	10 dt	000		1 1			
				Estructe tropot ruch to be all	065					
			<u> </u>	Bottomof boring = 21'B65.						
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25		ļ						-		
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			1							
30										
Note	es									
		A . a	V.							
	fightion lines represent approximate	bolindaries betw	een soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 o	f 2	<b>)</b>	1		
and u	nder conditions statud. Pluctuations	grigniundwater	may occur due	; to outer ractors than those present at the unit measurements were made.			-	i		
	yeing   carl	1/1/			Boring: Sの	45	4			
	<u> </u>	U								

MACTEC	Lo Cli	oject: Olin Chemical Superfund Site ocation: Witmuston, Mbient: Olin Chemical Superfund Site	Boring: SB	1-4	55	
Contractor: Boart hangen Operator: John Cralla Logged By: Jern Rawd IHM Checked By: CM Date Start/Finish: 87-8/09 Boring Location: Hread Ref. Elevation':  Sample Information	Drilling Mett Bore Hole ID Auger ID/OD Sampler: Hammer Wt Water Level	Dave Chipman Phi Willer	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sumple R = Rock Core Sample V = Insitu Vane Shear Test  Q = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent oe = Organie Content, percent			
Depth Samble No.	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
Run#1 3-5 3.5 UC-50.455-U/1-XXX	9830	-0.5 Deich brown fite sundwith street and a lift western sund and trues a sund and grown. Ony to moist, worth a fitter sundwith a fitter and a lift grounded brues at some	to sare thers.	50/ Su	Ye5	
5	4	nedum Foe obese Sevel. Any, masser -5 Oarh brown fine to medum soul trove of silo. Morst. No vuvsul odors detected	2011	5P		
0C-58-455-6/8-XXX	0840 K	- 6 Park bonus to bonus his to medicin. with a trace of silt. Very moist 8.3 Dark brown to very durk bonus to be soul with some sit and mes of and so for full arguit of a git	blush co.2	Pz	Yes	
10	\$ U	Hers and disomposed plant formers (Permitted with surly layers and liyers with the surly layers and liyers with Use 1. 3-10 Brown to slightly reddish brown fire surly with a true of sit. Use , now structure, No vanish odors.	in to 30 percent z 1.1	mics SP		
Rua #3 W-V5 4.5	o eli	0-11,5 Stylithyreddill hundstop to light o borum fire to weden sand with treves o long some lyers and treves of site. Wet	tourse sund			
	4	races of silt. Wat.	20 20			
<u>Notes</u>						
Stratification lines represent approximate boundaries be and under conditions stated. Fluctuations of groundwa	etween soil types, trans ter may occur due to of	sitions may be gradual. Water level readings have been made at times ther factors than those present at the time measurements were made.	Page / of Boring: SO			

	eve			Boring: <i>SB</i> File No.:	-45	5	
ractor: Boart hong ator: Date Dusch led By: Jeny Raw	(enc)		Client: Olia	File No.:			
ractor: Boart hong ator: Date Dusch led By: Jeny Raw	en-)	_		Client: Oli			
ed By: Jeny Rawc	PANC-	in the second			_		
ed By: Jeny Rawc	Operator: Bora Ho		Method: Riv Sonic  Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Su				
	Logged By: Jenn Rawel He Augeri						
Checked By: CTM Sample		Sampler:	r: Dave Ciscopisser Phy Wulled y= Institu Vane Shear Test		r Strength	(net)	
			Wt./ Fall: WA woh = weight of 140 lb. har			(pat)	
ng Location: Aven 4 Elevation':		Water Le	vei3: 6-7 Based on Socts	we = Water Content, percent			
				oc = Organic Content, percer	r -		
Sample Informat	ion	1					
Sampla No	Recovery	ime	Sample Description and Classification		nified lassification	nalytical ollected //N)	Elevation
			15-2-1 74h. 1 1	h 01n-01		405	Ш
			to light of the brown fire to o soul a little sit. Wet, stratified and coarser granullayers and on un (inu") strained yers				
			silvy byerat 2185	60 201 301 51 20	SP		
Ruft 5 20-25	4.0	0855	10-21 Brown medicato cocrescurl who a p10=0 little five surt. Wet. 4-11.8 Brown medicata cocres sunt with a little time surd and a trace of grand. Wet			W3)	
			DAG- 25 Gravelcules brown. with a little frai trace of sels. West. Nounu and	20. FI	60		
Kuntle 25-30	3,7	0910	Coase sind and anul w Hes and it. Wet, massive, N do detected		GU		
0c-56-455- 28/30	XXX	0930		= 21,4		Yes	
fication lines represent approximate bearder conditions stated. Fluctuations	Aundaries betw droundwater	reen soil types, may occur due	to other factors than those present at the time measurements were made.				
	Runtle 25-30.  OC-56-455-26/30  ES	Runts 4 15-20 4.2  Runts 20-25 41.0  Runts 20-30 31.7  Runts 46 25-30 31.7	Runt 5 20-25 41.0 0855  Runt 5 20-25 41.0 0855  Runt 6 25-30 3, 7 0910  OC-56-455-28/30 XXX 0930  SS	Runt 9 15-20 4.2 0840  15-20 hight brown fieds of sent all lights it. Wet; stratified and corresponded from the field of the light of the light of the light of the light of the sent approximate byte and corresponded from the light of the l	Runt 4 15-20 4.2 0840  15-29 hight brown to brow the light of the brown free to get a life of the sund layer and a life of the layer structure layer and a life of the sund layer and solver from struck free sund layer solver from struck free sund layer solver from struck free sund layer solver from solver from medium to coarse sund under a 100-0 life free sund under source sund with a life free sund could be free sund a trace of spruch web a life free trace of solver free sund under solve the free trace of solver free sund under solve the free trace of solver free sund under solve the free trace of solver free sund under solve the free trace of solver free sund under solve the free trace of solver free sund under solve the free trace of solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free sund under solver free free free free free free free f	to light of live brown freeds a send of 15-29 high browner brown by PID=01 50 at 155 it. Wet, stratifical and coarset approximate layers and a life strength of live true and coarset approximate layers and so brown (crown) strength was surfaced a life strength of layers and so brown (crown) strength was surfaced a life strength of layers and so brown was a layer at 157 (who strength was a life so life free sound or layers) show we was a layer at 157 (who show we was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life sound was a life was	Courts 4 15-20 4.2 0840 15-20 highs promoted brown to PID=01 5P  15-20 highs promoted from the both promoted brown to place of the first of all to start from and courted granullayers and and courted granullayers and and courted granullayers and so the start of the first of the first such users a first of the first such users and with a first of the first such users and with a first of the first such users and with a first such user and the first such users and with a first such user and the first such users and with a first such and a first such users of sparse will use of silver first such users for the first such users for the first such users for the first such users for the first such users for the first such users for the first such users for the first first such users for the first first trace of silver first first first trace of silver first first first trace of silver first first first trace of silver first first first trace of silver first fir

	MACI	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA.  Client: Olin  File No.:				
Cont	ractor: Boart houg ator: Juhn Granlina	yeur	Drilling I	Method: Rutu Sonic	Definitions:			
				e ID/OD: 62010	S = Split Spoon Sample U = Thin Wall Tube Sample			
	ed By: Jerry Rawc	whe	Auger ID	/OD: MA	R = Rock Core Sample V = Insitu Vane Shear Test			
	ked By: CTIM			Phil Muller	q = Unconfined Compressi		(psf)	
	Start/Finish: 8780	1		Wt./ Fall: VA	woh = weight of 140 lb. han wor = weight of rods	umer		
	ng Location: Aveny Elevation¹:		Water Le	vel3: 67'B65 haved on goile	we = Water Content, percent ee = Organic Content, percent			
Kei.	Sample Informa	tion			or Organic Content, perce			
	Cumple informa	I				=		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
30	Rum # 7 30-55	5.1	0930	wet, mussue	20.2	Gay	ω	
				38-40 Gruy to olive gry to-chie fine of surland opposed with some site and cobb wet mussue.	20			
35	39			Croche	20.4			
33	Rw#8 35-40	4.9	0940	35.40 Granto light gray Line sinly si cololles grant and media-coare sind. Weathout pilverized hedreal	lruth			
				Estimute top of rock at 34.7 B6:		-		
				Bottom of borry = 40 BGS	20			
40					20.4			
		1 1						
45								
Note								
				transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Boring: SB	5	5	



Sampler: Phil Muller

Hammer Wt./ Fall: NA

**SB-455** Boring:

File No.: **Definitions:** 

S = Split Spoon Sample
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
qp = Unconfined Compressive Strength (psf)
woh = weight of 140 lb. hammer
way - waight of rada

wor = weight of rods

wc = Water Content, percent
0 ' 0

Boring Location: Area 4	Water Level: 6-7' bgs based on soils	oc = Organic Content, percent
Ref. Elevation:		l

	Sample Informa	tion						
	Sample informa					ation	<u> </u>	_
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.5	825	0-0.5' Dark brown fine sand with some silt and a little				
	OC-SB-455-0/1.0-XXX		830	medium sand and traces of coarse sand and gravel. Dry to moist, root fibers.	0	SP/SW	YES	
				moist, root fibers.	0	SP/SW	/ 	
				0.5-4' Brown fine sand with silt and a little gravel and traces of medium to coarse sand. Dry, massive.				
				4-5' Dark brown fine to medium sand with a trace of silt.  Moist.	0	SP		
				No unusual odors detected.	0.1			
5								
	Run #2 5 - 10	4.6	830	5-6' Dark brown to brown fine to medium sand with a trace				
				of silt. Very moist. 6-8.3' Dark brown to very dark brown to black fine sand with	0.1			į
	OC-SB-455-6/8-XXX		840	some silt and traces of medium sand. Lots of decomposed organics mixed in with root fibers and decomposed plant	0.2	Pt	YES	
				fragments (Peaty). Stratified with sandy layers and layers with lots of organics.	0.1			
				8.3-10' Brown to slightly reddish brown fine to medium sand with a trace of silt. Wet, no apparent structure.	0	SP		
10				No unusual odors.	1.1	SF		
	Run #3 10 - 15	4.5	835					
				10-11.5' Slightly reddish brown at top to light brown to	0			
				brown fine to medium sand with traces of coarse sand along some layers and traces of silt. Wet.		SP		
				some tayers and duces of sitt. Wet.	0			
				11.5-15' Light brown fine to medium sand with traces of silt.  Wet.	0.1			
				WEL.	0			
15					0			
Note	es	•	•		•	•	-	

Checked By: CTM

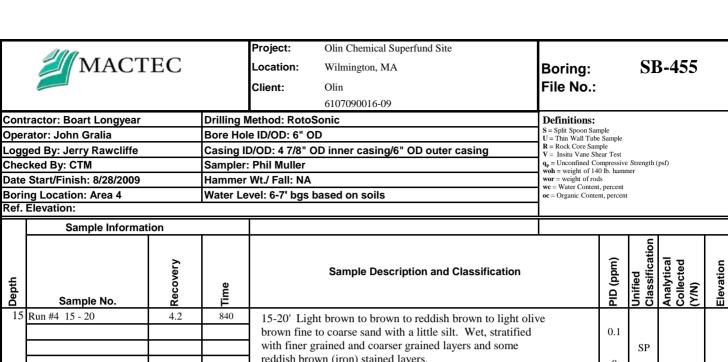
Date Start/Finish: 8/28/2009

Jeny 72. Rawliffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

1 of 3 Page

**Boring:** 



	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.2	840	15-20' Light brown to brown to reddish brown to light olive brown fine to coarse sand with a little silt. Wet, stratified with finer grained and coarser grained layers and some reddish brown (iron) stained layers.  Silty layer at 17.5' bgs.	0.1	SP		
20				Iron stained fine sand layer at 17.6-17.7' bgs.  Silty layer at ~18.5' bgs.  Coarser grained layers at 18.1-18.3', 19-19.5' bgs.  No unusual odors.	0.1	SP		
	Run #5 20 - 25	4	855	20-21' Brown medium to coarse sand with a little fine sand. Wet. 21-21.8' Brown medium to coarse sand with a little fine sand and a trace of gravel. Wet. 21.8-22.8' Olive brown fine to coarse sand and silt with	0	SP GW/C	GM	
25				gravel and some cobbles. Wet.  22.8-25' Gravel and cobbles brown to olive brown with a little fine to coarse sand and a trace of silt. Wet.  No unusual odors detected.	0.1	GP		
	Run #6 25 - 30	4	910	25-30' Olive to olive brown fine to coarse sand and gravel with a little cobbles and silt. Wet, massive.  No unusual odors detected.	0 0.1	GW/C	GM	
30	OC-SB-455-28/30-XXX		930		0 1.4		YES	

**Notes** 

Jeny K. Rawhffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 2 of 3

	<b>MACT</b>	'FC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA	Darinas		CT	2 155	
	WIACI	EC		<i>8</i> ,	Boring:		<b>S</b> E	3-455	
				Client: Olin 6107090016-09	File No.:				
Con	tractor: Boart Longyear		Drilling N	Method: RotoSonic	Definitions:				
	rator: John Gralia			le ID/OD: 6" OD	S = Split Spoon Sam U = Thin Wall Tube				
_	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sam V = Insitu Vane Sho	ple			
Chec	cked By: CTM		Sampler:	: Phil Muller	q <sub>p</sub> = Unconfined Co woh = weight of 140	ompressive 0 lb. hamn		psf)	
	Start/Finish: 8/28/2009			Wt./ Fall: NA	wor = weight of rod wc = Water Content	ls , percent			
	ng Location: Area 4 Elevation:		Water Le	evel: 6-7' bgs based on soils	oc = Organic Conter	it, percent	:		
	Sample Informati	ion			<u> </u>				
	Jampio	10	T -				r o		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
30	Run #7 30 - 35	5.1	930						
ļ				35-38' Olive gray to gray fine to coarse sand and silt with		0.1		İ	
 				gravel and cobbles. Wet, massive.		0.2	GW/G	M	
				38-40' Gray to olive gray to olive fine to coarse sand and		0			
		<u> </u>		gravel with some silt and cobbles. Wet, massive.		0.4			
35	Run #8 35 - 39	5	940					<u> </u>	
						$\prod$	$\prod$		Ш
	<u></u>	<b></b>	<u> </u> !	35-39' Gray to light gray fine sandy silt (rock flour) with		0			
 				cobbles gravel and medium to coarse sand. Weathered pulverized bedrock.		0.1			
<del></del>				Estimate top of bedrock = 34.7' bgs.		0			
 				Bottom of boring = 39' bgs.		0.4			
40		<del></del>	<b> </b>	<del> </del>			<u> </u>	<b></b>	+
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45			<u> </u>			l		l	
Note	<u>es</u>								
					Jeny 7	< <sub>1</sub>	Rau	rlffg	/
				ue to other factors than those present at the time measurements were made.	Page (Boring:	3 of 3		B-455	

Finish: 911100 cation!: Sample Informa	9	Bore Hol Auger ID Sampler Hammer	Moderation of the control of the con	poon Sample Vall Tube Sample Core Sample Vane Shear Test Fined Compressive S that of 140 lb. hammelation of rods		psf)					
Finish: 911100 cation: Area	2	Auger ID Sampler Hammer	Meric maggious ("OD) orks casing ("Pale to Inside the I	/all Tube Sample Core Sample Vane Shear Test fined Compressive S th of 140 lb. hamme ht of rods		psi)					
Finish: 911100 cation: Area	2	Hammer	Wt./ Fall: NA  vel3: cpprox 10' based on obser-	ore Sample  Yane Shear Test  fined Compressive S  th of 140 lb. hamme  It of rods		psi)					
Finish: 911100 cation: Areq tion!:	2	Hammer	Wt./ Fall: NA where we want to be seen a see to we want to be seen a see to we want to w	fined Compressive 5 tht of 140 lb. hamme tht of rods		psf)					
tion':	2	Hammer	Wt./ Fall: NA  vel3: cpprex 10' based on obser-  we water	phi of 140 lb. hamme hi of rods		r,					
tion¹:		Water Le	ver coppray 10' based on obser- we= Water								
	tion		ne = Orman			wor = weight of rods we = Water Content, percent					
Sample Informa	tion		Varion; oc = Organ	oe = Organic Content, percen							
Sample No.	Recovery	Time	Sample Description and Classification		Unitied	Analytical Collected (Y/N)					
			Course Orach		) O	40C	-				
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D-756-0-9/1	FCAR	تيو. ق		nd.			P				
	+		some tines, some concrete pour	der f	7	7	1				
	+		am. mosty uniterm, trace e	010016			9				
. #4 -	-	-					a				
	+	2:50	5-6.5: Mosty brown dork brown	med			0				
5-456-7-0190		9:00	sond, some gravel, some cobble, si	eme			P				
		<u> </u>				Y	0				
	MSD		65-8.5: Brown-red brown mediun	1 son	.	•	0				
		1					0				
			8.5-10: Light brown - Tan med can	Cl.			-				
(218)		]	Some gravel, some cobbles (2-21)	1 50			1				
n # 3 10-15	2.0	9:40	10-12: Brown-dark brown an	owe IV							
			sound, some cable, wer, non	ni-		:	P				
			form		0	. 1					
			12-13: Brown-ton growelly coorse	SOM			0				
(E)	T		poerly growed, wer	1	-		0				
#3 Puny	5-20 2	10:10			$\dashv$		<u>L</u>				
			consec come, most w uniform	- 0	- 1		P				
16/11		10:40			50	Y					
	<del> </del>		\$ 15-17: Brown-red brown coorce	Same			ο.				
			some cobble, some gravel, wer				-				
	<u> </u>		some cobole, sun growery so	woo.			P				
			19-20 1 2 may 2 may 2				1				
			Stemen dracelle sould , 30	The			0				
			20.5 = and of boring bedrock o				•				
			SPPROX 20.3'	4.5	- 1		1				
	18-456-0-01.  18-456-0-01.  18-456-0-01.  18-456-0-01.  18-456-0-01.  18-456-0-01.	11 0-5 3.1  18.456-0-0/10-KXX  19.456-0-0/10-KXX  19.456-10 3.9  19.456-7-10 0-10-KXX  1	11 0-5 3.1 8:75 18.456-0.0/1.0-KXX 8:30 10 12 5-10 3.9 8:50 2-456-70/0-KXX 9:30 DUP/MMS MSD  MSD  MSD  MSD  MSD  MSD  MSD	11 0-5 3.1 8:15 Commet 0-0.4  18.456-0.91.0-xxx 8:3 0.4-3.1: Brown-light brown so  Some fines, some concrete pow  dry. mosty uniform, trace c  2-3" in diameter  12 5-10 3.9 8:50 5-65: Mosty brown-dark brown  Dupping fines, org  65-85: Brown-red brown medium  Some gravel, some cobde, dry  8.5-10: Light brown-tan med som  Some gravel, some cobbles (2-3"  fines, dry.  12-13: Brown-tan gravely coarse  poerly growed, wet, non  12-13: Brown-ten gravely coarse  poerly growed, mosty uniform, v  15-17: Brown-red brown me  15-17: Brown-red brown coarse  some cobble, some gravel, wet  10-20: Brown-gravely somely somely so	18 10-5 3.1 8:15 Count 0-0.4  18.456-00/10-xxx 8:30  2.4-3.1; Brown-light brown sand.  Some fines, some concrete powder  dy. mostly uniform, thate cabble  2-3": In diameter  10 3.9 8:50  5-65: Mostly brown-dark brown med  Bupying fines, org  bupying fines, org  6-8.5: Brown-red brown medium som  some gravel, some cabde; dy  6-8.5-10: Light brown-tan med sand;  Some gravel, some cabbles (2-3") some  fines, dy.  10-12: Brown-dark brown medium  sand; some cabble, wet, non uni-  form  12-13: Brown-tan gravely coarse sand  12-13: Brown-red brown med-  some cabble, wet  5-15: Brown-red brown med-  some cabble, some gravel, wet  5-15: Brown-red brown coarse sand  some cabble, some gravel, wet  10-12: Brown-red brown coarse sand  some cabble, some gravel, wet  10-13: Brown-red brown coarse sand  some cabble, some gravel, wet  10-14: Brown-grat gravely sand  10-20: Brown-grat gravely sand	18-10-5 3.1 8:15 (Junual 0-0.4)  18-456-00/10-xxx 8:30  Some fines, some concrete powder of the mosty uniform, those cobbie 2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  3-45 some grouel, some cebble, some special some cebble, some special some cebble, some special some grouel, some cebble, diff  3-5-10	18-45-0-9/10-xxx 8:15 (which 0-0-0)  18-456-0-9/10-xxx 8:35 (0.4-3.1) Brown-light brown sand.  Some fines, some concrete powder of the imastry uniform, thate cabble 2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  2-3" in diameter  30 Some grouel, some cable, some brown med sond in the some grouel, some cable, diameter of the some grouel, some cabble, diameter of the some grouel, some cabbles (2-3") some fines, dim.  3-10 8.5-10: Light brown atom med sond;  3-10 Some grouel, some cabble, wet, non uniform in form  12-13: Brown-ton growelly coarse some powelly growed, wet  3-15-17: Brown-red brown med some some cabble, some grovel, wet  15-17: Brown-red brown coarse some some cabble, some grovel, wet  17-19: Brown-growelly some grovely some cabble, some grovely some cabble, some grovely some cabble, some cabble, some grovely some cabble, some cabble, some grovely some cabble, some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some cabble, some grovely some cabble, some cabble, some grovely some cabble, some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some grovely some cabble, some grovely some grovely some cabble, some grovely some cabble, some grovely some cabble, some grovely some grovely some grovely some grovely some grovely some grovely some grovely some grovely some grovely som				

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, M.A. Client:	Boring: 5	В.	457		
Ope Log Che Date Bor	paractor: Board honorator: Gree Haller ged By: Crh a Start/Finish: 9/1110 ing Location: Area Elevation:	9/9/14 2	Bore Ho Auger I Sampler Hammer	Method: Rota Sanic le ID/OD: 6000  MOD: 47/800 inner casing/6000 orter oasing  Well Fall: NA  evel3: approx 101 from observation	Definitions:  s = Spit Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Yene Shear Test g = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent oe = Organic Content, percent				
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
0	Run# 1 (0-5)	3.5	13:05			0.0	40C		
5	oc-55. 494-e.e/1	-C - X 7 4	13:10	some fines, moist. 2-3: Ton med same, some fines, moist 3-5: ton med-coarse send, so	ines,	SP	٧	0.2	
5110	20 ± 2 (5-10) 05-58.457-8-	THE RESERVE AND ADDRESS OF THE PARTY.	13:15	The table to make the many to	medium same fir	er SP	Y	P15	
	9/14/09			4-15: Brown-dowle brown gravesome cobbles 3-5" max, do pessible innactive pipe frags	elly some	s 5 P			
15	ZUn #3 (10-15	1.4	10:10	10-15: Brown-dark brown gr Sone, coerse - med, saturar cobble	mos, bo	5P	7	PIP: 0.1	
15	2Um # 4(15-2	94.2	10:46	15-19: Brown - gray brown , Sond - some gravel, some cob max. wet 19-20: Brown - reddish brow schol, some coorse, wet, uni	ble 2"	5P		P: 17	
25	Zun 6 5 (20-25)	3.0	11:00	20-25: Brown medium sond, so coasse, some fines, uniform, u	-prop	SP.		91D	

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Notes

Page 1 of Z

	MACT	EC			Boring: File No.: ≤७-५5٦					
Checked By:  Date Start/Finish: 9/11/29 - 9/14 Hamr Boring Location: Avea 2 Water Ref. Elevation':				Method: Roin Sanic le 1D/OD: 6°00 MOD: 47/800 inner cacing/6°00 over oasing : Jerry Rowellite Wt./Fall: N/A evel3: pprox 10' from observation	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Samp R = Rook Core Sample V = Insitu Vane Shear Te q, = Unconfined Compres woh = weight of 140 lb. h wer = weight of rods we = Water Content, pere oe = Organic Content, pere	st sive Strength ammer	(pal)			
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified	Analytical Collected (Y/N)			
25 30	Pun #6 (25-3 pc-38 - 457-28 3		11:25	25-27: Brown - dork brown cooks same grovel, wer 27-30: Brown - dork brown gro coarse sonal, same colders 3" me	avelly	SP		0 0		
Note	<u>s</u> ,									
	1101					-				

	MACTEC		Project: Olin Chemical Superfund S' Location: Wilmington; Client:	B-458				
Con	tractor: Beart hongyeras		Method: Ropo Sanic	Definitions:				
Ope	rator: Grea Halloten		e ID/OD: (少つの)	S = Split Spoon Sample U = Thin Wall Tube Sample				
Log	ged By: Jem Rawcliffe	Augeric	100: 47/800 inner cusing/6000 ovier casing	R = Rock Core Sample				
	cked By: CTM		More Maggiore	V = Insitu Vane Shear Test q = Unconfined Compressiv	e Strength	(psf)		
Date	Start/Finish: 8 3/ 09		Wt/Fall: NA US	woh = weight of 140 lb. ham		4-7		
Bori	ng Location: Prec 3		vel3: 26'BGS buschon soils	wer = weight of rods we = Water Content, percent				
Ref.	Elevation:			oc = Organic Content, percen				
	Sample Information							
Depth	Sample No.	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
	1C-5B-458-0/1.2-44	1530	of geofrabric. O. 5-60 Brokerup aspluto 6 hels.	20.1		Yes		
5			t-4 Brown to duch brown the to med with a little grand and a trace of site. Very most. to arresand 4-5 Brown to duck brown force to madrice. Very most;	70.4 Savel.	59/5W 5P			
	Rut 2 5-10 4.5 DE-56-458-5/7-KX	1230	5-6 Park brown to block fine to mediene such with a little course sund and a ground. Some organic material with a the layer at 6	A more u. a . Am		Yes		
10			7-10 Brown to light brown fine to med with a true of coursesand. Wet, no odots.	Line suid	5P			
	Run #3 10-15 4.6		10-12 Brum to light brum fine to medica soud. Wet. 12-13 high brum to olite guy free to one soudwished trace it site. Wet stratifican sub along some of the west stratifican		SP.			
			13-15 Brown fire to median soud. U massive. No varsual oblors.	Jet soil	5P			
15		1		= O			- 1	
Note		ween soil types.	transitions may be gradual. Water level readings have been made at times	Page / o.e			-	
and	nder conditions stated. Fluctuations of proundwate	r may occur due	to other factors man mose present at the time measurements were made.	Page / Of Boring: SB				

h

	MACT			Project: Olin Chemical Superfund Site Location: Wilmington), MA.  Client: Boring: 56-458  File No.:				
Conf	tractor: Boart home	sever	Drilling I	Method: Robo Sanic De	finitions:			
Ope	rator: Gray Hall old	24		le ID/OD: ( of o) O	Split Spoon Sample			
Logo	ed By: Jeny Rawa	1.42		) a/	Thin Wall Tube Sample Rock Core Sample			
	cked By: OTm	THE	Sampler	. 10.71     10.71	Insitu Vane Shear Test			
	Start/Finish: 8/3/104	0	Uemmer		Unconfined Compressive weight of 140 fb. ham		(psf)	
					= weight of rods			
	ng Location: Dveu 3		vvater Le		<ul> <li>Water Content, percent</li> <li>Organic Content, percer</li> </ul>			
Kei.	elevation :			De C	Organic Content, percer	1		
	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
15	1Kun#4 15-20	4.3	1600	15-18.5 Brown to hight brown meder Send with troses of course 15.5-19 Brown to higher brown to with a little median with the dank gray layers 13 miles	n fill= 0 ssul	SP		
20	Runt 5 20-26	4.5	1125	19-20 Brunto Sandwith a little massue- No un	2012 2013 2011	Seu		
			1625	to course send with a true of gravel. uniform. 11.5-23 Olivets gray job brown Fretuc so Sound and gravel with process of with		w/c		
عد	UC-5B-458-22/24	-XX-X	1630	blet. who ruge of grows size.  23-24 Brown to olivelo Sudwith trues of coarse Wetynker.	-3.1	5	Vas	
				34.6 2406 Olive braughoolunging fine to such and grand aighta trace of 57/2 too West. No unsual octors. 245-26 Grand and colors seed rock fry		GM		
30				roch west top of roch = 24,5 B6 5	Jener			
Note	ie i			10 BUT OF SHAW - 200 10 60				
Stratif	ication lines represent approximate bo			transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	3° 2 01	- 2	)	
	Jenny Rundil	Y			ring: S $\mathcal{B}^{-}$			

	4 -			Projects Oli- Observed C. 181				
1	MALACT	TC		Project: Olin Chemical Superfund Site		_	_	
	MACT	EC		Location: Wilmington, Mt.	Boring: S	3-4	159.	
1					File No.:		, - (	
					rile No.:			
Con	tractor: Boart house	1000	Deilling	Anthony D. S. C.				
Ope	rator: John Grangle	Jevan	Born Hol		Definitions: S = Split Spoon Sample			
	ged By. Jeny Rawc		CHILDS	(OD 117/ 10 )	U≈ Thin Wall Tube Sample			
	cked By: CTM	TIME	Auger	100: 47/800 inner casing/600 outer casing	R = Rock Core Sample V = Insitu Vane Shear Test			
	Start/Finish: 9/3/09		Sampler	Vane Corprains	4 = Unconfined Compressiv	e Strength (	(psl)	
	ng Location: Avera		nammer	Wt./ Fall: NA	woh = weight of 140 lb. ham wor = weight of rods	mer		
Ref	Elevation:		Ivvater Le	TE 165 1943EU 04 Spils OSENVOJUVI	we = Water Content, percent			
-	T T				oc = Organic Content, percei	3.		
	Sample Informat	ion	_					
1						uo		
		≥				ati	= =	_
اء ا		Š		Sample Description and Classification		ايز م	tic:	Ö
Depth		Recovery	Time	'		Unified Classification	S = 3	Elevation
1-	Sample No.					5.5	Analytical Collected (Y/N)	ᡥ
	Runt 10-5	4.5	1105	U-0.2 Asplula	PIN=590	sω		
	UC-58-459-0/10	XXX	1110	6-1.8 Oakbrownto brown Rice to me	leten	300	Yes	
	•			sund with some coursesenterlywel.	278		162	
				former should. Must, muscus, organic	oder 18			
				1.8-3 Brown Fine to mediuscarl with a	Margaret	SP		
l				coarse surl and site. Most, massing	V. C. C.	31		-
				3-3.3 Very duck lorsun Printo weeling sun				
				o Tunic demis (wood fry more fivel decoy	tang or a			
				3.3 -5 Brown to slightly reddish brown of in	iona).			- 1
5				they aline and the state of the state of	288	SP		
<u> </u>	Runt 2 5-10	4.2	1110	touredin soul with a true to a little sit.	Mois)			
	12000 15 07 3 - 10	1.0	1110	5-65 Brown to derk brown Alice to weden	PIN=170	50		
	06-58-459-6/8-	111	1120	sund with trues of site. Very moist travel	1			- 1
٠.	00-39-47 /- 0/8-7		1130	Stratitien, organic octor.	2120		Yes	- 1
				6.5-8 Olive guy to light olive brown time o	10 medius		162	- 1
<u> </u>				6.5-8 Olive gry to light olive brown hire of	/	50		
				31 11 - Wel Smather study remir all	220			
		·	ļ	8-8.5 Very derh gong to block fine on mode	un count			
				8-8.5 Vong derh gen to block fine to mede with a little to overes of course such	05.1-	SP		
				8.5-10 North stucks clarkoline gay stration	al augus			- 1
10	0			woodien seed with thomas toward Ed. 1 1:1-6	-011			- 1
	Run#3 10-15	4.3	1120	10-11 Nice gray to rodulish brew to derholing	gray pin a			
						50		
				11-12 Porkreddish bowwa with reddil or cocol	and anes.		1	
				11-12 Dorkreddich brown with reddick restrict	20.4			- 1
				12-13 Olive bours modern on corrected	of mary	Sw		
				12-13 Olive bovery medien to coorsesuely	a colonia			
					ulgravel			
				13-15 Sorum reddish borum coursesand a with some the towedum sound. Wet		Sul	1	1
				Stight un usual other at topot indend - Bot	50.2	Tow	1	- 1
15				of in trush on union landow date tel	20.4			- 1
Note	es			STATE OF THE PROPERTY OF THE PERFORMANCE	20.7			
	-							
								- 1
								- 1
								- 1
								- 1
								- 1
Stratif	ication lines represent approximate bo	undaries Name	en soil types	ransitions may be gradual. Water level readings have been made at times		_		
and yo	nder conditions stated. Fluctuations of	gradundivater	nay occur due	to other factors than those present at the time measurements were made.	age / or	+a		
/	10111 K 0111	. [[. ]]	[]					
-	July 1900	W/	1/	B	oring: $SB$	-49	7	

				IS a second seco				
	MACT	TEC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA.  Client:	Boring: S	B- L	159	
Con	stractor: Recent la nea	a vener	Drilling	Method: Runs Sanic				
Ope	etractor: Board hours	yevan	Bore Ho	le ID/OD: 6°00	Definitions: S = Split Spoon Sample			
	ged By. Jeny Raw		YATSI A	BIOD: 47/800 inner cacing/6000 over casing	U = Thin Wall Tube Sampl	c		
Che	cked By: Com	11170	Sampler	: Dave Chapman	R = Rock Core Sample V = Insitu Vane Shear Test			
	Start/Finish: 93 09		Hammer	Wt./ Fall: NA	g = Unconfined Compressi woh = weight of 140 lb. has	ve Strength ( nmer	[psf)	
	ing Location: Ance 🏖		Water Le	evel3: \$7-8' Back ous oils	wor = weight of rods wc = Water Content, percer			
Ref.	Elevation1:				oe = Organic Content, percer	in.		
	Sample Informa	tion						
1					<del></del>	c		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
15	Runty 15-20	4.0	1155	15-16 Olive brown to slightly reddich bru	4 PID=0,3	SP	100	ш .
				Kit to course sand wet, 16-20' Brown to reddish brown coo und groud with some medicy and Air s massing.			,	
				Nounusual odors clerested.	2 [.]			
					20.1			
30	Runtes 20-25	3.8	1205		20.3			
				20-20:8 Brown to reddich prouve coarse sun and grown with some mechin to fine scal 20.5-22:5 Strong reddich brown to very dork brown coarse sund with appendent some n to fine sourl.  22.5-23 higher reddich brown fibotomedica a 4th coarse sundant to resort qual  23.25 Reddich brown medlento coarse	veddih zo.y wedih zo.y wedia- zo.1 zonal ceith	SW SP	,	
25			<del> </del>	some fine sund aulgroul, Wet.	2013	SW		- 1
	Rua #6 25-30 OC-58-459-2628	4.6	1225	35-27 Reddish troum medeus to cocree soul and gravel with a little fore sour. 87-28 Olive to clive brown fire to merlin night graveland colonles with some site	P10=0:2	Gy	1	
				as and see a live and institute	20. L		Yes	
30				25-30 higher gray polvensed rock with colorles and grand. Bottom of boring = 30'B6S	20,5			
Note	es		<u> </u>	21-21-W CM - 201-02-02-02-02-02-02-02-02-02-02-02-02-02-				
Strati	fication lines represent approximate b	oundaries betwo	een soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of	2		
	yeing Rainel	HI.			Boring: 5B	45	9	



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.:

**Definitions:** 

**SB-459** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: John Gralia Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing

Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 9/3/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 2** Water Level: 7-8' bgs based on soils observations

Ref. Elevation:

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.5	1105	0-0.2' Asphalt				
	OC-SB-459-0/1.0-XXX		1110	0-1.8' Dark brown to brown fine to medium sand with some	590		YES	
				coarse sand and gravel (pavement sub grade). Moist, massive, organic odor.		SW		
				1.8-3' Brown fine to medium sand with a trace of coarse sand	78	an		
				and silt. Moist, massive. 3-3.3' Very dark brown fine to medium sand and organic	18	SP		
				debris (wood fragments well decomposed).  3.3-5' Brown to slightly reddish brown fine to medium sand with a trace to a little silt. Moist.	72	SP		
5				with a trace to a little silt. Moist.	88			
	Run #2 5 - 10	4.2	1110	5-6.5' Brown to dark brown fine to medium sand with traces				
				of silt. Very moist to wet, stratified, organic odor.	170	SP		
	OC-SB-459-6/8-XXX		1130	6.5-8' Olive gray to light olive brown fine to medium sand with traces of coarse sand and silt. Wet, stratified, slight	120	SP	YES	
				organic odor. 8-8.5' Very dark gray to black fine to medium sand with a little to traces of coarse.	3.2	SP		
10				8.5-10' Dark olive to dark olive gray stratified fine to medium sand with a trace of coarse sand. Wet.	8.1	SP		
	Run #3 10 - 15	4.3	1120	10-11' Olive gray to reddish brown to dark olive gray to dark gray fine to medium sand. Wet.	0.7	SP		
				11-12' Dark reddish brown with reddish rust colored areas, fine to medium sand with a trace of silt.  12-13' Olive brown medium to coarse sand with gravel and	0.4	SW		
				fine sand. Wet. 13-15' Strong reddish brown coarse sand and gravel with	0.6	SW		
				some fine to medium sand. Wet.  Slight unusual odor at top of interval, - bottom of interval no unusual odors detected.	0.2	SW/G	W I	
15					0.4			
Not	es							

<u>Notes</u>

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 2

**Boring:** 

				_						
	Alle TA OT			Project:	Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location:	Wilmington, MA	<b>Boring:</b>		SI	3-459	
				Client:	Olin	File No.:				
					6107090016-09					
Con	tractor: Boart Longyear		Drilling N	lethod: Roto	Sonic	Definitions:				-
Оре	rator: John Gralia			e ID/OD: 6" O		S = Split Spoon Samp U = Thin Wall Tube				
Logo	ged By: Jerry Rawcliffe				DD inner casing/6" OD outer casing	R = Rock Core Samp V = Insitu Vane Shea	ple			
Che	cked By: CTM			Dave Chapn		qp = Unconfined Con	mpressive		(psf)	
	Start/Finish: 9/3/2009			Wt./ Fall: NA		woh = weight of 140 wor = weight of rods	s	ner		
Bori	ng Location: Area 2		Water Le	vel: 6.5' bgs	measured in borehole	wc = Water Content, oc = Organic Content				
Ref.	Elevation:					<u> 1                                   </u>				
	Sample Informat	tion								
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 20	4.0	1155						,	
				15-16' Oli	ve brown to slightly reddish brown fine to coars	se.	0.3	SP		
				Wet.						
							0.8			
					own to reddish brown coarse sand and gravel wi um and fine sand. Wet, massive.	th	1.1	GW/S	 SW 	
				No unusual	odors detected.		0.1			
				140 unusua.	odors detected.		0.1			
20							0.3			
20	Run #5 20 - 25	3.8	1205	20 20 01 D	. 1811	1.1	0.3			1
	Tean #5 20 25	5.0	1200		rown to reddish brown coarse sand and gravel varmed to fine sand. Wet.	/ith	0.2	GW/S	I SW	
				some mean	in to fine said. Wet.		0.4	0 1172	ĺ	
					Strong reddish brown to very dark reddish brow with gravel and some medium to fine sand.	/n	0.1	SW		
					ght reddish brown fine to medium sand with a and traces of gravel.	ittle	0.2	SP		
25					dish brown medium to coarse sand and gravel fine sand . Wet.		0.3	sw		
	Run #6 25 - 30	4.6	1215	25-27' Red	dish brown medium to coarse sand and gravel v	vith	0.2			
				a little fine		, 2021				
							0.4	GM		
	OC-SB-459-26/28-XXX		1225		e to olive brown fine to medium sand with grav with some silt.	'el			YES	
				and cobbies	with some siit.		0.2			
	L			28-30' Ligh	at gray pulverized rock with cobbles and gravel		0.5			<u> </u>
	шшшш				of rock = 28' bgs.		1 I I			
				D - 44 £1-	2011-					
				DOUGHI OF D	oring = 30' bgs.					1
Note	98	<u> </u>								
NOE	<u>53</u>					Jeny 7	'Z	Rai	wlff	1

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 2 of 2

	MACT	EC			Boring: SB-460 File No.:			
Ope Log Che Date Bori	tractor: Beart hower rator: Gregitalias ged By: Team Rawa cked By: Team Rawa cked By: The Start/Finish: \$1109 ng Location: Area 3 Elevation':	Title	Bore Hol Auger ID Sampler Hammer	e ID/OD: (6" DD  JOD: 47/200 inner cusing/6" DD orter casing  Daw Chargemen  Wt./ Fall: NA  vel3: 6.5-75 BGS backdon soils	Definitions: S = Sphi Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressive Suength (psf) woh = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent one = Organic Content, percent			
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	DC-58-460-0/1.0-	3,3 VLD	0830 0840 0840	0-1 Olive gray fine to coase such an armed with thees of sit. Very no to soil tractantaven). 1-2 higherfung to white pulven connecte	l pin=o	SW	りどろ	
5	00 33 [00-07],0			(remains o' f concrete stob).  2-2.5 hight brown fine to coase sund and grand with a litt stif-(Stab subgrade) 2.5-5 Brown oder allowing fire machines of moist, massie, vui form. No musul odors.	=0, 1 scend =0.3 =0.7	sw 5P		
	160n#25-10 00-56-460-5,5-7,5	4.0	0840 0850	5-5,5 Darkbrown to black fine to medin sand with trans of silt and o zenic met bey decomposed trues of corre and angun 5.5-6,5 Brown to stylely reddish trown fin to median sund with a true of 5,1/t. Weny	muist	) 5Ρ	Yes	
10				6.5-10 Brown to hight brown fix to median with torces of or it and course soul. Vi moiet to med. Some stratification with a fiver sprind layers. No invent odors.	eus 30 1			
	Rm#3 10-15	3.9	U\$50	10-4 hight brown fine to median soul with trongs of solo. Wet without. Some derk graph smany. Wet without Some derk 11-12 Dark graph black factomedian sand wet. Appears to be notual experient truly.		sΡ		
15		,		12-13 Browner sightly reddiction from the for it seems wet, shouthed approxime. Nowwend who 13-15 hight brown fore to madiin send. Well uniform, no unusual o'dloss.				
Note	Collected 0.1'su Collected 5:5-7. Collected 30-32	uple from	n bene soils	who remains of concrete stab sincluyer and just below it. over bedre In will fruit ammount he oil	1.6			
				to other factors than those present at the time measurements were made.	oring: 50-	3	0	

	MACT	TEC		Project: Olin Chemical Superfund Site Location: Wilmington, MJ.	Boring: 5	3 - 4	60	
				Client: O(ia	File No.:			
Con	tractor: Beart non	a vereus	Drilling I	Method: Roso Sanic	Definitions:			
Ope	rator: Greatfallians	30		le ID/OD: (パロの)	S = Split Spoon Sample			
Log	ged By: Teny Raw	c) De	TATE OF THE	SIOD: 47/800 inner cusing/6000 over oasing	U ≃ Thin Wall Tube Sample R = Rock Core Sample	c		
Cha	cked By: CTM	OH N	Sample	: Pave Chepman	V = Insitu Vane Shear Tes			
	Start/Finish: 4 109		Uamma	Wt/Fall: NA	q = Unconfined Compress: woh = weight of 140 lb. has			
					wor = weight of rods	nan-		
	ing Location: 19 vea 3		water L	evel3: 675-7.5 Bbs based on soils	we = Water Content, percer oc = Organic Content, percer			
Kei.	Elevation:				de - Organie Contain, perc	-11		
	Sample Informa	tion			L			
Depth	Sample No.	Recovery	Тіпе	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
15	Runt44 15-20	4.4	0410	15-158 1:1+ La Jalite brown	C = Distant			
				15-15.8 hight brown to light of the brown to medium scandwith traces of course 15.8-17' Que gray to gray to dork grayigh free to median sand with traces of 51 st. 5/14bt stratiched appearance.  5/14bt stratiched appearance.	wet 70.2  wet 70.2  wedu	50		
20				No unusulodurs descort.		SP		
100	Run#5 20-25	5.2	0930	30-23.3 Olive brown dod		-		
-				Fire to wedien sund with Wat, uniform, no appreciate str. No warsend alors	lin brows	SP		
25	Rin \$ 65 25-30	4.4	0950	27.3-25 Brown to derligning do light of Liver course similarly gravel with a cotthes and silo. Wet, was some juste on 512. Nourosal odors	20.1	SW		
				25-26 Darkgong Firetrousse good, somel colobles with a 1. He site. Wat, massal.		64/64		
				26-30 Olive to olive brown Prieto course	- 0 0			
				grandwith citables and a little site. who wide ruge of some size. Wassing. Very faint, odor. (pt on drill my water spiels = 6 7)	et, =0.2			
				what have organia sire. Wassire. Very fraint,	United white	GU)/		
				(prondrill my waterspoils = 6 7)	unidentition	1		
30					20. L			
Note	es							
					1	٠		
Strati	fication lines represent approximate to	ound fries between of groundwater i	en soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 20	+3		$\neg$
L)	Jeny Caurl				Boring: $S_{0}$	7-46	,0	
	1	V						

			In				
	180		Project: Olin Chemical Superfund S				
1	MACTEC		Location: Wilmington,	Boring: 50	-46	,0	
1			Client:	File No.:	•		
1			Chent:	Luc Mo			
_							
Con	tractor: Boart hong year	Drilling I	Method: Rons Sanic	Definitions:			
	rator: Great Hallidas	Bore Ho	le ID/OD: 6~0 Ø	S = Split Spoon Sample U = Thin Wall Tube Sample		•	
Loge	ged By: Jem Rawciffe	Augerit	BIOD: 47/800 inner cusing/6000 over casing	R = Rock Core Sample			
	cked By: ETM	Sampler	: Dave Chespurgy	V = Insitu Vane Shear Test			
	Start/Finish: 4/1/09		Wt./ Fall: NA	q = Unconfined Compressi woh = weight of 140 lb. han		(bst)	
	ng Location: Area 3		evel3: 6.5-7.5 BGS based on soils	wor = weight of rods			
	Elevation':	ivate: L	ever . GIS 713 SGS Dagea Bu S VIIIS	we = Water Content, percen ee = Organic Content, perce			
-	1	***					
1	Sample Information			L			
					0.0		ŀ
	ح ا	1			at a	Q 0	- E
ے ا	9		Sample Description and Classification		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	15 52	Ę.
Depth	Sample No.	Time			iffi ass	S = a	Elevation
ے		Ē			Unified Classification	Analytical Collected (Y/N)	ü
30	Ruft 7 30-33-5 3.2	1035	to course sand and gravel with thus of and city.	ne PINZO. 2			
1	UC-5B-460-30/32-XXX	1040	to course sand and smel with much	cohles	GW	Yes	
1			and cito.				
		<del> </del>	an an to struct street of land for	203			
ı			32-32+ Dark Hiregry & dark gry fin	1	au		
<u> </u>		+	Coarse sint antenut with some ast	an	94		
			tracks of college, wet massur. Found thomogener-like octor. 325-335 Outhough litterny opened with fine to collect smil outsile (weether	EU. 3			
1			22 5- 22 - Dulandalultana canalini	Pacal I Dan	1		
1			file to course the later than	la channe			
			ruch.	i women yo			
35			f -				
Г			Estructe top of ruch= 32 5 365				
ı		<del>                                     </del>	Botom & borry = 33.5' B65				
ı		+	1,000 am or 101.2			1	
ı		<del></del>					
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<u> </u>	LL						
Note	<u>es</u>						
							- 1
				1)+0			- 1
					3		
1							- 1
1							8
			*				
Stanti	fication lines represent approvimate/halladesise hat	ween soil times	transitions may be gradual. Water level readings have been made at times	Dans 3 6	_		
			transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 3.4	5		
1	10000 NC 100 V-1111						
ام ا	ferry June 1			Boring: SB-	460	)	
L.	U MV			<u> </u>	, 00		
	10						



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

File No.:

**Definitions:** 

**SB-460** Boring:

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Greg Halliday Bore Hole ID/OD: 6" OD Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Logged By: Jerry Rawcliffe

Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 9/1/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 3** Water Level: 6.5-7.5' bgs based on soils

Ref. Elevation:

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	3.3	830	0-1' Olive gray fine to coarse sand and gravel with traces of silt. Very moist. (Fill from soil treatment area). 1-2' Light gray to white pulverized concrete. (Remnants of	0	SW		
	OC-SB-460-0/1.0-XXX		840	concrete slab).  2-2.5' Light brown fine to coarse sand and gravel with a little silt. (Slab sub grade).	0.1		YES	
				2.5-5' Brown to dark brown fine to medium sand. Moist, massive, uniform.  No unusual odors.	0.3	SW SP		
5					0.7			
	Run #2 5 - 10	4.0	840	5-5.5' Dark brown to black fine to medium sand with traces of silt and organic material (root fibers) very decomposed.  Traces of coarse sand and gravel.	0.4			
	OC-SB-460-5.5/7.5-XXX		850	5.5-6.5' Brown to slightly reddish brown fine to medium sand with a trace of silt. Very moist.	0.2	SP	YES	
10				6.5-10' Brown to light brown fine to medium sand with traces of silt and coarse sand. Very moist to wet, some stratification with coarser and finer grained layers.  No unusual odors.	0.1	SP		
	Run #3 10 - 15	3.9	850	10-11' Light brown fine to medium sand with traces of coarse sand along some layers and traces of silt. Wet, uniform. Some dark grayish staining. 11-12' Dark gray to black fine to medium sand. Wet. Appears to be natural organic staining.	0 0.1	SP		
				12-13' Brown to slightly reddish brown fine to medium sand. Wet, stratified appearance. No unusual odors.  13-15' Light brown fine to medium sand. Wet, uniform, no	0.1	SP		
15 <b>Not</b>	Į.			unusual odors.	0.1			

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 3

**Boring:** 

	<b>MACT</b>	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA	Boring:		SI	3-460	
	IVII IOI	LO		Client: Olin 6107090016-09	File No.:			7 100	
Cont	ractor: Boart Longyear		Drilling N	Method: RotoSonic	Definitions:				
	rator: Greg Halliday			e ID/OD: 6" OD	S = Split Spoon San U = Thin Wall Tube				
	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sam V = Insitu Vane Sh	ple			
	cked By: CTM			: Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 14	mpressive		(psf)	
Date	Start/Finish: 9/1/2009		Hammer	Wt./ Fall: NA	wor = weight of roc wc = Water Content	ls	iici		
	ng Location: Area 3		Water Le	vel: 6.5-7.5' bgs based on soils	oc = Organic Conte				
Ref.	Elevation:								
	Sample Informat	ion				r		•	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.4	910	15-15.8' Light brown to light olive brown fine to medium sand with traces of coarse sand. Wet.		0.1	SP		
				15.8-17' Olive gray to gray to dark grayish brown fine to medium sand with traces of silt. Wet, slight stratified appearance.		0.2	SP		
				17-20' Brown to light brown fine to medium sand with a trace of silt. Wet, massive.		0.3	SP		
20				No unusual odors detected.		0.3			
	Run #5 20 - 25	5.2	930	20-23.3' Olive brown to dark olive brown fine to medium sand with traces of coarse sand . Wet, uniform , no apparer	nt	0.1			
				structure. No unusual odors.		0.2	SP		
			1						

23.3-25' Brown to dark gray to light olive brown fine to

massive, wide range of grain size.

massive. Very faint unidentifiable odor

(pH on drilling water spoils = 6-7)

No unusual odors detected.

a little silt. Wet, massive.

coarse sand and gravel with a little cobbles and silt. Wet,

25-26' Dark gray fine to coarse sand, gravel, and cobbles with

26-30' Olive to olive brown fine to coarse sand and gravel with cobbles and a little silt. Wet, wide range of grain size,

30 **Notes** 

Run #6 25 - 30

Jeny 72. Rawliffe

0.2

0.1

0.2

0.1

0.2

0.2

GW

GW/GM

GW/GM

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

950

4.4

2 of 3 Page

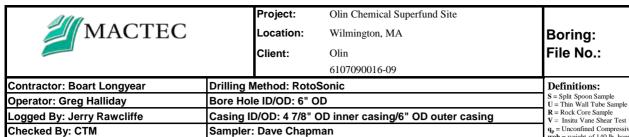
**Boring:** 

	Maa			Project:	Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location:	Wilmington, MA	Boring:		SI	3-460	
				Client:	Olin	File No.:				
				Oneric.	6107090016-09	110 1101.				
Cont	tractor: Boart Longyear		Drilling N	lethod: RotoS		Definitions:				_
	rator: Greg Halliday			e ID/OD: 6" O		S = Split Spoon Sar U = Thin Wall Tub	nple			
	ged By: Jerry Rawcliffe				DD inner casing/6" OD outer casing	R = Rock Core San	nple			
	cked By: CTM			Dave Chapm		V = Insitu Vane Sh $q_p = Unconfined Co$	ompressive	e Strength	(psf)	
	Start/Finish: 9/1/2009			Wt./ Fall: NA		woh = weight of 14 wor = weight of roo	is	mer		
Bori	ng Location: Area 3				gs based on soils	wc = Water Content oc = Organic Content		t		
Ref.	Elevation:				-					
	Sample Informat	ion								
Depth		Recovery	91		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
Del	Sample No.	Rec	Time				⊟	Cla Cla	₹ <u>0</u> ₹	Ee
30	Run #7 30 - 33.5 OC-SB-460-30/32-XXX	3.2	1035 1040	gravel with	k olive to dark olive gray fine to coarse sand a traces of cobbles and silt. ark olive gray to dark gray fine to coarse sand		0.1		YES	
				gravel with	some silt and traces cobbles. Wet, massive,		0.2	GW/C	ъ́М	
					nia-like odor.		Ш	Ш		ПП
		ППП	ППП		Dark gray to light gray gravel with cobbles and se sand and silt. (weathered broken up rock).	I				
				Time to coars	se sand and sitt. (weathered broken up rock).		0			
					p of rock = $32.5$ ' bgs.					
				Bottom of b	poring = $33.5$ ' bgs.		0.4			
35										
							0			
							0.1			
							0			
							0.4			
40										
1										
45										
Note										
Note	55					Jeny.			whff	
					e gradual. Water level readings have been made at times aan those present at the time measurements were made.		3 of 3			
						Boring:		Sl	B-460	

			5 . / 0			
1	AND A COURCE		Project: Olin Chemical Superfund Site			
1	MACTEC		Location: Wilmington, Mit.	Boring: 5	R-UI.I	
				boiling. 3	0 -101	
1	_		Client:	File No.:		
_						
Con	tractor: Board hong yever	Drilling I	Method: Runo Sanic	Definitions:		
Ope	rator: Enpa Hay Middle	Bore Ho	e ID/OD: 6 00	S = Split Spoon Sample		
	ged By. Terry Rawcliffe	Challe	100 u7/200 i /1600 i	U = Thin Wall Tube Sample	<b>:</b> ,	
	cked By: CTh	Committee	100: 47/800 inner casing/6°000 orter casing	R ≈ Rock Core Sample V ≈ Insitu Vane Shear Test	•	
		Sampler	Dave Chappean	q = Unconfined Compressi	ve Strength (psf)	
	Start/Finish: 9/3/09	Hammer	Wt./ Fall: NA	woh = weight of 140 lb. han	numer	
	ng Location: Area 2	Water Le	vel3: = 6'B65 busedon soil (	wer = weight of rods we = Water Content, percent		
Ref.	Elevation <sup>1</sup> :			oc = Organic Content, perce		
	Sample Information					
1						
1					Unified Classification Analytical Collected (Y/N)	
1	-				# = = =	_
ے ا	*		Sample Description and Classification		ا قو الناط	<u>.</u>
Depth	Sample No.	Time	•		sisi sisi	/at
ے	Sample No.	Ë			Unified Classificat Analytical Collected (Y/N)	Elevation
1	Run #1 0-5 4.3	1415	0-0.1 April 12 1 1 1 1	10	12.0 4 0 5	ш
	4 - 4 - 4	1420	0-0.1 Asplatt with poly lines under	earce: PID=0		
	0C-5B-461-0/113-XXX	1720	10.1-10.3 1 h h man 1 Por 10.44 10 114	Derical.	SW Y25	
			some course gund and graul. Whois pieres of explish, No USUSUL along affected	+	' '	
		1	Diese of ceche ld. A)	1000		
1			NO UNUSUL AND WATER DE	1		
			0.7-2.5 Brown to slightly reddish brown			
		-			10	
1			fine to medium sundwith a trace of sel	<i>*</i>	5P	
1			Moist, uniform.	20.1		
_		1	2.55 500 Brown to light brown histo medi	in frui		
15			with a Wace of selt. Moist. No un verylood	lovs = U.d		
	Run#2540 5.0	1420		4.1.2		
1	CANTHE SOLO 910	1700	5-7,5 Brown Fine to median gunl	IN PINEU.2		
1	2 20 1111	11100	a trace of course sunt and sile. Wet	21/2/		
	OC-5B-461-5/7-1XX	1430	che trade come de lie de che	styloly 20.1	15P Yes	
1			5 tratified some reddish strined by	03 1 20.1		
1.			No consent ochors deterted.		1 1 1	
		-				
1			7.5-9,5 Brown to plive brown ear	ze =0		
			such and gravelwith some fine to such yours of colobles and site	nedius	SW/	
1			Sweetend pones of wholes en late	=0.3	164	
1			9,5-10 Redslich brown course suntant	canal -		
10				P 20.2	0.1	
HU	Rum#3 10-15 4.7	22444	with a little median to take such. We	·	Su	
	Run #3 10-15 4.7	1440	10-11 Brownto light roadish brown course	sourlwith	SW	
			some medium send and gravel ornes	of small	1640	
			colobbles. 11-11,4 Dankreddish brown coarse sunt. meding syntamlesmel. Nouwer, I	n Plaze 2		- 1
			11-11.4 Day breadish Down Coarse Sun!	with some	SW	
		-	mediun scularlandenel. Noumscal	100 1 4 10	1360	
				CONS OCERCENC		
			11.4-12.5 Brown to light restrict towner courses	sundwith		
			some wellin sun. Wat.	PIDEONS	5ω	
			12 5-15 Brum to reduce Arown to othery	ine to medica		
			12 5-15 Brown to reddish brown to olveryng to such with any of course send unter to. S	movied		
115			111 Ha 5-0010 a 200 - 11 0 11 1	4.1	50	1
Note	Se		with some course opmand myers. Reddish 5	ana = 112		1
IAOTE	2		Jugers at \$ 12.9' and 13.5'. Gray siby land 14-14.1'BCS Wet.			
1			All Williams Gray STAG TO	yera		- 1
1			214-14,11600 Wet.	<b>.</b>		- 1
1					•	
1						ı
1						
						ı
1						
Stratif	fication lines represent approximate boundaries betw	een soil types,	ransitions may be gradual. Water level readings have been made at times	2222 / 2	7	
and A	ader conditions stated. Fluctuations of groundwater	may occur due	to other factors than those present at the time measurements were made.	Page / of	3	
1 (	Jan Church II.				_	- 1
L			ł r	Boring: ぢゟ゚゠	4101	
-	1/1/			g ~	· • /	- 1

Or: Boart home: Gray Halleden		Dettina	Project: Olin Chemical Superfund Site  Location: Wilmington, M. Client:	Boring: 50	3-4	61		
: Grantallide	gyeren	Dellina		Boring: 50-461 File No.:				
: Grantallide	yevan		Method: Ruho Sanic	le la partir de				
By Jehn Raw		Bore Ho	le ID/OD: 6°00	Definitions: S = Split Spoon Sample				
	1.de	<b>WELVE</b>	100: 47/200 in a 1/200 de	U = Thin Wall Tube Sample	3,			
	- III-VC	Sampler	100: 47/800 inner cacing/6000 over oasing	R = Rock Core Sample V = Instu Vane Shear Test				
rt/Finish: 9 3/09		Hammer	Wt./ Fall: NA	q = Unconfined Compressi woh = weight of 140 lb. han	veStrength (	(psl)		
ocation: Aren 2		Water Le	evel3: 26'865 based on 501/5	wer = weight of rods				
ration':			5 00) bayer 64 341	we = Water Content, percent oc = Organic Content, percent				
Sample Informa	tion							
					_ c		Γ	
Sample No.	Recovery	Time			Unified Classificatio	Analytical Collected (Y/N)	Elevation	
m#412-20	3,59	1610	15-17 Brown Fine to medicin sandwith	trues of PIPZ				
			17-20 Brown to light brown king town	edum zv.i	50			
			sand with a trucof course sur	and				
			Stratification with courses graney	ight 20.2	5W			
		<del> </del>	and some order with string one (21).	5-18'065) 20.8				
		<del>                                     </del>	Was your and and some lake bed					
14 65 20-25	4.6	1625	25-23 hight brown to brown fire to sund with a true of gravel Wet. son stratification. No villed whom	COOPEPIDEUI) HE CRUSHE	SW/			
			23-24 Brown Rive sand with some mes	luin 2012	SP			
				rulodos.	SP/ Su	,		
				2011				
Ju \$6 25-30	510	1645	25-25.5 Brown medianto coare su with some gravel contras sent. We	ed P10=0.2 +, museu.	SP.			
			28.5-3 to Olive brown to brown Aperoca	escent	6W			
<del></del>		-	a trace of Str. Wet, mussing.	20.2				
-55-461-28/30	-Kad	1650	,	70,2		Vec		
				20.3		767		
1								
	Sample No.  M # 4 15 - 20  W # 5 20 - 25	M#415-20 389 W & S 20-25 4.6	Sample No.  M 4 15-20 3.9 1610  W 5 20-25 4.6 1625	Sample No.  Sample No.  Sample No.  M # 4 15-20 359 1610 15-17 Brown fine to medicin sandwith Coarse swil. Wet, no vine such odos  17-20 Brown to light brown have the sand with a trace of coarse swil grand and a trace of coarse swil grand and a trace of sift. Wet, st some sity and were better or with coarses granners, and some sity and were better or with the same of when the vine sand with a trace of grand. Wet some simil with a trace of grand. Wet some structured in the sand with a trace of grand. Wet some structured with a trace of grand with some puts to lightly with a sand with some puts some cand a little sitt, Wet.  24-2-5 Brown median to coarse such a little fixe sand and grand with some grand court fixe sand. We No odose your productors slotated.  25-38-5 Brown median to coarse such we No odose your polarious slotated.  25-5-30 Olive brown to brown type focus and a trace of fixe. Wet, mussing.	Sample No.  Sample No.  Sample No.  Sample Description and Classification  Sample No.  At 415-20 359 1610 15-17 Brown Five to medicin sandwith trings of MPZ.  Coarse sand. We known will odors detected.  17-20 Brown to light brown Know to widom 20.1  Sand with a true of coarse send and  grand only a true of 51/4, Wet, slight 20.2  Strattfrintian with coarses granned lugges  and some stddick stained ones (2175-1806) 23.5  Lowershy crease were bettern of internal  We I worked odors elected. 20.2  Same sing crease were bettered. 20.2  Same with a true of grand wet some create  stratification. No valual odors  to light forwing  22-24 Brown Five sand with some predicin 20.2  Same and a little sit, wet.  24-25 Brown medican to coarse seed pid-0.2  a little five sandaul grand. No variables.  No odose younglodors elected. 20.1  28-5-30 510 1645 25-35.5 Brown medicant coarse seed pid-0.2  with some grand with a little copples course  send and grand with a little copples course  a true of 5th. Wet, massive. 20.2	Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Sample No.  Sample No.  Sample No.  Sample No.  17-20 Brown fine to medicin sample of the of t	Sample No.  Sample	

Com	MACT		la m	Project: Olin Chemical Superfund Site Location: Wilmington, MJ. Client:	Boring: SB-461 File No.:						
Ope	tractor: Board home	yerru	Bore Ho	Method: Run Sanic le ID/OD: (400	Definitions: S = Split Spoon Sample						
	ged By. Jen Rawa	lifle	AL LA	100: 47/800 inner casing/6000 orter casing	U = Thin Wall Tube Sample R = Rock Core Sample	le					
	cked By: ctm		Sample	Dantellingman	V ≈ Insitu Vane Shear Tes						
	Start/Finish: 9/3/09		Hammer	Wt./ Fall: NA	q <sub>p</sub> = Unconfined Compressive Strength (psf)  woh = weight of 140 lb. hammer						
	ng Location: Aven 2	<u> </u>	Water Le	vel3: 26'B65 Baselom spile	wor = weight of rods we = Water Content, perce	nı					
Ref.	Elevation':				oc = Organic Content, perc						
	Sample Informati	ion									
% Depth	Sample No.	Recovery	Time	Sample Description and Classification	-	Unified Classification Analytical	(Y/N) Elevation				
30	10um & 7 30 333	3.7	1705	30-33 Olm to brun to slye bras fine to a sund anad gravel with some addeles. Wet I some stratification of culor chapes, 37-33:5 Brun fine to medium sent with a	course 20.1 Sw/						
				33.5-34 Olive brown fine pocure su and grand with a life site and while		1//					
35				34-35 Recovered a copple small copples	-0.7						
33			<del> </del>	Estrunte topot roch 234 B65							
				Bottomof boury = 35'B65.							
40											
a <sup>r</sup>											
Note Strain and u	fication lines represent asproximate b	oundaries, bezw	een soil types, inay occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 3 of	3					
	Jeny Kaur	liffe			Boring: $\mathcal{SB}$	461					



Water Level: ~6' bgs based on soils

Hammer Wt./ Fall: NA

**SB-461** 

v = institu vane Snear Test
q<sub>p</sub> = Unconfined Compressive Strength (psf)
woh = weight of 140 lb. hammer
wor = weight of rods
wc = Water Content, percent

oc = Organic	Content, percent	

	Elevation:		vei. ~0 bgs based on sons	, ,	-			
	Sample Informat	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.3	1415	0-0.1' Asphalt with poly liner underneath.				
	OC-SB-461-0/1.0-XXX		1420		0		YES	
				0.1-0.7' Dark brown fine to medium sand with some coarse sand and gravel. Moist, pieces of asphalt. No unusual odors.	0.1	SW		
				0.7-2.5' Brown to slightly reddish brown fine to medium sand with a trace of silt. Moist, uniform.  2.5-5' Brown to light brown fine to medium sand with a trace of silt. Moist.		SP		
						51		
5				No unusual odors .	0.2			
	Run #2 5 - 10	5.0	1420	5-7.5' Brown fine to medium sand with a trace of coarse sand and silt. Wet, slightly stratified with some slightly reddish	0.2			
	OC-SB-461-5/7-XXX		1430	stained layers (7-7.5').		SP	YES	
			850	No unusual odors detected.	0.1			
				7.5-9.5' Brown to olive brown coarse sand and gravel with some fine to medium sand and traces of cobbles and silt.	0	SW/G	W	
				0.5.101.00.1121.1	0.3			
10				9.5-10' Reddish brown coarse sand and gravel with a little fine to medium sand. Wet.	0.2	SW		
	Run #3 10 - 15	4.7	1440	10-11' Brown to light reddish brown coarse sand with some		SW/G	W.	
				medium sand and gravel and traces of small cobbles.  11-11.4' Dark reddish brown coarse sand with some medium	0.2	SW/G	w I	
				sand and gravel. No unusual odors detected.	0.2	sw		
				11.4-12.5' Brown to light reddish brown coarse sand with some medium sand. Wet. 12.5-15' Brown to reddish brown to olive gray fine to	0.3			
				medium sand a little coarse sand and silt. Stratified with some coarse sand layers. Reddish stained layers at ~12.9' and 13.5'. Gray silty layer at ~ 14-14.1' bgs. Wet.		SW		
15						SP		
Note		<u> </u>	1					

<u>Notes</u>

Date Start/Finish: 9/3/2009

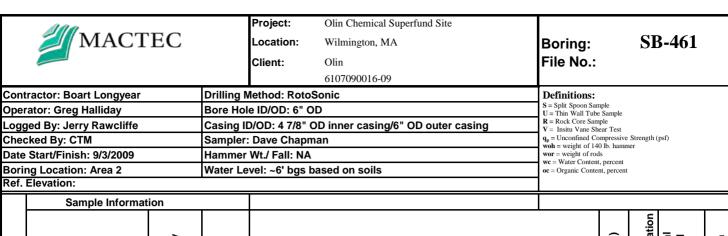
**Boring Location: Area 2** 

Jerry 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 3

**SB-461 Boring:** 



	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 20	3.9	1610	15-17' Brown fine to medium sand with traces of coarse sand. Wet, no unusual odors detected.	0.2	SP		
				17-20' Brown to light brown fine to medium sand with a trace of coarse sand and gravel and a trace of silt. Wet, slight stratification with coarse grained layers and some reddish	0.1			
				stained areas (~17.5-18' bgs). Some silty areas near the bottom of the interval.  No unusual odors detected.	0.2	SW		
20					0.2			
	Run #5 20 - 25	4.6	1625	20-23' Light brown to brown fine to coarse sand with a trace of gravel. Wet, some crude stratification.		SW/SI		
				No unusual odors.  23-24' Brown to light brown fine sand with some medium sand and a little silt. Wet.	0.2	SP		
				24-25' Brown medium to coarse sand with a little fine sand and some gravel. No unusual odors.	0.2	SP/SV	W	
25								
	Run #6 25 - 30	5.0	1645	25-28.5' Brown medium to coarse sand with some gravel and fine sand. Wet, massive. No unusual odors detected.	0.2	SP GW		
	OC-SB-461-28/30-XXX		1650	28.5-30' Olive brown to brown fine to coarse sand and gravel with a little cobbles and a trace of silt. Wet, massive.			YES	
30					0.2			

Notes

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 2 of 3

Boring:

	Maa			Project:	Olin Chemical Superfund Site						
	MACT	EC		Location:	Wilmington, MA	Boring:		SF	3-461		
				Client:	Olin	File No.:					
				Client:		File No.:					
0			D.::!!!	lathad Dit 1	6107090016-09	D 6 ***					
	ractor: Boart Longyear			lethod: Rotos e ID/OD: 6" O		Definitions: S = Split Spoon Sa					
	rator: Greg Halliday					U = Thin Wall Tub R = Rock Core Sar					
	jed By: Jerry Rawcliffe cked By: CTM			Dave Chapm	D inner casing/6" OD outer casing	V = Insitu Vane SI q <sub>p</sub> = Unconfined C	near Test	e Strength (	psf)		
	Start/Finish: 9/3/2009			Vt./ Fall: NA won = weight of 140 lb. hammer wer = weight of rods							
	ng Location: Area 2			vel: ~6' bgs b	ased on soils	wc = Water Conter oc = Organic Conte	it, percent	t			
	Elevation:		Water Le	vei. To ago a		- Organic Control	ni, percen				
	Sample Information	on									
	Cample information	011						ء			
Depth	Sample No.	Recovery	Time		Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation	
30	Run #7 30 - 35	5.1	1705	30-33' Oliv	re to brown to olive brown fine to coarse sand	and	0.1				
				gravel with	some cobbles. Wet, some stratification of co			SW/C	ïW		
				changes.	G		0.1				
				33-33.5' Bi and gravel.	rown fine to medium sand with a little coarse	sand					
					live brown fine to coarse sand and gravel with	ıa	0.2	SW/S	P		
				little silt and	d cobbles.						
			1	34-35' Rec	overed a couple small cobbles.		0.4	GW/C	ЗM		
				Estimata ta	of mode = 241 has						
35					p of rock = 34' bgs. poring = 35' bgs.		0.7				
40											
40											
			1								
			-								
			<del> </del>								
45											
Note	es es										
	Jeny 72. Raurliffe										
					gradual. Water level readings have been made at times	Page	3 of 3	3			
and u	nder conditions stated. Fluctuations	of groundwate	er may occur du	ue to other factors th	an those present at the time measurements were made.	1.5	- J.	-			
	Boring: SB-461										

	MACI	TEC		Project: Olin Chemical Superfund Site	<	a l	101.7					
	WIACI	LEC		Location: Wilmington, Myt.	Boring: 5	0	100	-				
				Client: Oliva	File No							
Con	tractor: Board home	a yerac		Method: Roso Sanic	Definitions:							
				e ID/OD: 6°00	S = Split Spoon Sample U = Thin Wall Tube Sample							
	ged By: Terry Raw	cliffe	Augerio	100: 47/200 inner cusing/600 over oasing	R = Rock Core Sample V = Insitu Vano Shoar Test			- Common of the				
	cked By: 67% Start/Finish: 9/3/09			r: Nave Chipmen  q = Uncompressive Surrough (psf)  who = weight of 140 lb. hammer								
	ng Location: Area 3			well = 7.8' BGS Basedon soils	war " weight of rock	ght of rods						
	Elevation <sup>1</sup> :		Jivacor Co	ici , b	we = Water Content, percent ee = Organic Content, perce							
	Sample Informa	tion										
1						5		- Laboratoria				
l		2				cati	<u> </u>	<u>_</u>				
5		Š		Sample Description and Classification		Bif	ytic	atio				
Depth	Sample No.	Recovery	Time			Unified Classification	Analytical Collected (Y/N)	Elevation				
<u>ٿ</u>	Ru #1 0-5	4.1	0855	0.0.7 Dellara Finatacaca a	/ 010	٥٥	40°	ш				
l	1,341,11			Grand with a true of SIN. Moist inco huyers of Geofabric cot 0.7	C PIUZOA							
١.				henser of Gentabric cot 0,7'	muc (FIII)							
				0.7-1.5 higher gray londenup downede ste	ils. 20,2	1 1	Vac					
	UC-513-462-0/10	-XXX	6400				125					
	· · · · · · · · · · · · · · · · · · ·			with traces of site (coperates los subgril	grand 20.1	SW						
		-		masen. No unsulvalots.	e). Moist							
				4-5 Very duck & wang Lie to medan so	1 28.4							
5				with organic meteril. pites of wood. W	12 t 2 15,5	n.						
一	Run#25-10	42	0905	5-5-5-14 ded lange of the	0.00	1-7-						
	06-50-462-4/6-		6910	with rominic delones (C. son medicin Such	P10 = 3.8		Yes					
				Moist town wist, south hail	yoused > 17	SP	162					
				5-5.5 Van derk brown frie to meding such with organic debres (for grund wellder Moist town wist, south had so brown to 5,5-8 higher reddish brown to brown	Zine 261							
	,			to welling sund with troubs of sit. Very	u sist							
				do wet.	E 0.4							
				8-10 hight bruen to brown Fine to aree	lun sund	50						
				8-10 hight bruin to bruin fine to aire with traces of sitr. Very worst tower, mu No bous and odors.	sand-		- 1					
10				No busual odors.	20.2			- 1				
10	Run#3 10-15	4.5	0910	10 10 1 1 1 how Contracting and	0610							
	V.0V.2 10 17		0 1/0	10-13 hight brown fine to medien sent with tymes of sitt. Wet, stratified with a of slightly reddish brown strained (eyers (3 + 11.2 BLS) No unwendochers clocked.	P102012							
				of slightly reddily known exacted layers	100000	50		1				
				+ U.2 BUS) No unsent or love of the	Conferment Links							
				13-15 hight brown to brown fine tomedien with a trace of course sand and site. stratified . One thin black stand layer 213, No unusual odos descrited.	sund 50							
				with a grace of course send and 5,16.	Wet,	SP						
1				strated. One thin black stand layer = 13,	5'BGS) =0		- 1	- 1				
				No unusulodos detectos.	-0			- 1				
Note	······································				20			_				
	-											
					4							
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								1				
Stratif	ication lines represent approximate	oyndaries betwe	en soil types, t	ransitions may be gradual. Water level readings have been made at times	Page / Do	40						
and u	der conditions stated. Fluctrations	or groundwater r	nay occur due t	to other factors than those present at the time measurements were made.	- 100	ح ک						
1	eng county	9			Boring: 5 B	-41	<b>(2)</b>					
_	Boring: 58-462											

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MV  Client: Olin	Boring: ゔ゚゚ゟ゚゠゚゚゚゚゚゚゚゚゚゚゚゠゚゚゚゚゚゚゚ File No.:						
Log Che Date Bori	tractor: Boatt hower rator: John Graglian ged By: Teny Cawc cked By: CTM Start/Finish: 9/3/09 ng Location: Aven 3 Elevation':	Juffe	Bore Hol Auger ID Sampler Hammer	Method: Roto Sonic e 1D/0D: 600 DOD: 47800 inner casing/600 over oasing Dare Chapmen Wt. Fall: NA vel3: 27-8'B65 Basedon soils =	Definitions:  S = Split Spous Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insite Vane Shear Test  q, = Unconfined CompressiveStrength (psl)  wash = weight of 140 lh. hammer  was = weight of rock  we = Water Content, percent  oc = Organic Content, percent						
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)	Elevation				
15	Rusty 15-20	4.2	0920	15-17 hight brown to light of live brown hie to nestion said with three of sitt 17-17. Shight of the brown to dark grayich brown coarse sund and grand with some coloh and a true of 57/t. Wet	M Rine 40	5P Sw/ /ou					
20				17.5-16.5 Kedlish brown this to coare so growel with some cutiles and three of 5. 18.5-20 high reddishyellow brown fix to andgrowel. Wet. No unseed whose c	infant zo.2 ils. West cocree saul lesceld, zo.1	GD/Gu					
	Rug #5 20-25	5.2	0930	20-21.5 Bruntodice brown finetocycur Sand and ground Gold with trues of 5/2. h Cobbles at 21.5' No your loclor clete 21.5-24 Brunto of the Pire to coarse son gravel with a little 5/12 and cobbles.	let P10=14 del 20.6 deul 20.6	GW GW					
25			~	24-25 Olive to olive gamy fite to cocopy and grand with some to a little site. I wasser. No unusual odors checiacet	= 2.4 20 <b>:8</b>	1 CW					
	Run#6 25-30	3,4	0746	25-28' Uline brown to yethowish alice five to course sund and growel wit sitt and trues of cutolites. Wet lived 28-30 Yellowish while brown growel and	lonicufio =0.2 hsoure dy") =0.1 colobles	GW GW GW					
30				with some Printicoare suil. Wet.	20.1	GP					
Notes											
Stratifi and u	Stratification lines represent approximate bodylearies between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of ploundwater may occur due to other factors than those present at the time measurements were made.    Page 2 o F 3										

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	MACT	EC		Client: Olin	Boring: 58-462 File No.:							
Cont	ractor: Boar thouse	ev		lethod: 凡らみ Sowic e ID/OD: 6 <sup>7</sup> 0 b	Definitions: S = Split Spoon Sample							
	ged By: Jerry Ruwel			100: 478 UD simul custin/6" UD outer casin	U = Thin Wall Tube Sample R = Rock Core Sample							
	cked By: Chy	(100	Sampler:	Dave Chapmen	V = Insitu Vane Shear Test q <sub>0</sub> = Unconfined Compressive	:Strength (	psf)					
$\overline{}$	Start/Finish: 913 09		Hammer	L/Fall: WA weight of 140 lb. hammer								
Bori	ng Location: Aren 3		Water Le	3: ~ 7-8'B65 Basedons wells we were weight of rods we we water Content, percent on a companie Content, percent								
Ref.	Elevation¹:				e - Organie Content, percen							
ĺ	Sample Informat	ion										
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation				
30	Run# 7 30-35	4.8	0450	30-33 Brunto die brun Añe to coe	rse P1020.7	GW						
				30-53 Brown to obine brown Añe to coo sunt antiqued with a trace of site and a Wet massin.	colibles.							
				wertungson.	D 0 = 20,4		Var					
	-1/-2	100	1	133-34 higher olive gray to due from good w	NIN LIMAO	CW/	Yes					
$\vdash$	OC-50-462-31/3B.	7.33	1015	Sant antiqued with a trace of \$110 and a Wet massis.  33-34 high olivegray to dive from grade a coase sand and colables and a little to be	20 1	100	и					
l			<del> </del>									
1			<del>                                     </del>	34-35- Gray tolightary coldele and gravel	ouch =U.b							
'	/×\x x	\ \ \ \	1	4-34- Gray tolightany coldele sulquel ouch 50.6 anyments in is different buth fine to course sund and 50.2								
35	7 - 3 - 4 - 7 - 7		1	silre	20.2							
	Estimated top of bedrach = 34'365											
l												
	Bottom of bong = 35'BGS											
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Not	es											
ı												
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				transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 3 o	f 3						
[]" [	044.0	/ g. Gandwate			l							
10	and remely	X			Boring: $5B$	-40	07					
-	0 00											



Project: Olin Chemical Superfund Site

6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.: **SB-462** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: John Graglia Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing

Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 9/3/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 3** Water Level: ~7-8' bgs based on soils

Ref. Elevation:

**Definitions:** 

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of 140 lb. name wor = weight of rods wc = Water Content, percent oc = Organic Content, percent

	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.1	855	0-0.7' Dark gray fine to coarse sand and gravel with a trace of silt. Moist, massive (Fill). Layers of Geofabric at 0.7' bgs. 0.7-1.5' Light gray broken up concrete slab.	0.1			
	OC-SB-462-0/1.0-XXX		900	1.5-4' Brown fine to coarse sand and gravel with traces of silt. (Concrete slab sub grade). Moist, massive, no unusual		SW	YES	
				odors. 4-5' Very dark brown fine to medium sand with organic material (pieces of wood). Moist.	8.4	Pt		
5					25.5			
	Run #2 5 - 10 OC-SB-462-4/6-XXX	4.2	905 910	5-5.5' Very dark brown fine to medium sand with organic debris (fine grained well decomposed). Moist to very moist, stratified.	3.8	SP	YES	
				5.5-8' Light reddish brown to brown fine to medium sand with traces of silt. Very moist to wet.	1.7			
				8-10' Light brown to brown fine to medium sand with traces of silt. Very moist to wet, massive.	0.4	SP		
10				No unusual odors.	0.2			
	Run #3 10 - 15	4.5	910	10-13' Light brown fine to medium sand with traces of silt.  Wet, stratified with a couple of slightly reddish brown stained	0.2	an.		
				layers (~10.9 and 11.2 feet bgs).  No unusual odors detected.  13-15' Light brown to brown fine to medium sand with a trace of coarse sand and silt. Wet, stratified. One thin black stained layer at ~13.5' bgs.  No unusual odors detected.  0.3  0		SP		
						SP		
15 Not					0			

**Notes** 

Jeny 72. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 3

**Boring:** 

	<b>MACT</b>	ГЕС		Project: Location: Client:	Olin Chemical Superfund Site Wilmington, MA Olin 6107090016-09	Boring: File No.:		SI	3-462		
	tractor: Boart Longyear			Method: Roto	Sonic	Definitions: S = Split Spoon Sample					
_	rator: John Graglia			U = Thin Wall Tube Sample							
	ged By: Jerry Rawcliffe cked By: CTM		OD inner casing/6" OD outer casing	V = Insitu Vane Sh q <sub>n</sub> = Unconfined Co	ear Test	Strength (	(psf)				
	Start/Finish: 9/3/2009			Dave Chapn	nan	woh = weight of 14 wor = weight of roo	0 lb. hamn				
	ng Location: Area 3				s based on soils	wc = Water Content oc = Organic Conte					
	Elevation:										
	Sample Informa	ition									
Depth	ery				Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation	
	Run #4 15 - 20	4.2	920	with traces 17-17.8' L	th brown to light olive brown fine to medium so of silt.  ight olive brown to dark grayish brown fine to d and gravel with some cobbles and a trace of s		0.7	SP SW/G			
				1701051	Paddish brown fine to scarce and and grovel w	i.h	0.4				

Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.2	920	15-17' Light brown to light olive brown fine to medium sand				
			<u> </u>		0.7	SP		
				coarse sand and gravel with some cobbles and a trace of silt.  Wet.	1.4	SW/G	I W 	
				17.8-18.5 Reddish brown fine to coarse sand and gravel with some cobbles and a trace of silt. Wet.	0.4			
					0.2	GP/G	W	
20				No unusual odors detected.	0.1			
	Run #5 20 - 25	5.2	930	20-21.5' Brown to olive brown fine to coarse sand and gravel	1.4			
				920 15-17' Light brown to light olive brown fine to medium sand with traces of silt.  17-17.8' Light olive brown to dark grayish brown fine to coarse sand and gravel with some cobbles and a trace of silt.  Wet.  17.8-18.5 Reddish brown fine to coarse sand and gravel with some cobbles and a trace of silt. Wet.  18.5-20' Light reddish/yellow brown fine to coarse sand and gravel. Wet.  No unusual odors detected.  0.1				
			No unusual odors detected.  5.2 930 20-21.5' Brown to olive brown fine to coarse sand and gravel with traces of silt. Wet, cobbles at 21.5' bgs.  No unusual odors detected.  1.4 GW  21.5-24' Brown to olive fine to coarse sand and gravel with a little silt and cobbles.  0.6 GW/GM  0.3  1.6	1				
						GW/C	JM	
				with some to a little silt. Moist, massive.		GW/G	BM I	
25					0.8			
	Run #6 25 - 30	3.9	940	25.28. Olive brown to vellowish clive brown fine to coarse	0.2	G) I/G		
				sand and gravel with some silt and traces of cobbles. Wet	0.1	GM/G	TW	
						GP		
					0.1			
30					0.2			
.50	'I	1		i e e e e e e e e e e e e e e e e e e e	1	1	1	

**Notes** 

Jeny 72. Rawliffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 2 of 3

	A 4 -			Project:	Olin Chemical Superfund Site					
	<b>MACT</b>	FC		Location:	Wilmington, MA	Doring:		ÇI	3-462	
	WIZICI	LC			•	Boring:		91	<b>)-4</b> U∠	
				Client:	Olin	File No.:				
			ı		6107090016-09					
	tractor: Boart Longyear			lethod: RotoS		Definitions: S = Split Spoon Sa	mple			
	rator: John Graglia			e ID/OD: 6" O		U = Thin Wall Tub R = Rock Core Sar	e Sample			
	ged By: Jerry Rawcliffe cked By: CTM			Dave Chapm	DD inner casing/6" OD outer casing	V = Insitu Vane Si q <sub>p</sub> = Unconfined C	hear Test	Strength	(psf)	
	Start/Finish: 9/3/2009			Wt./ Fall: NA	dii	woh = weight of 14	40 lb. hami		(1)	
	ng Location: Area 3				based on soils	wc = Water Conter oc = Organic Conte				
	Elevation:		Water Le	vei. ~ r e bge	5000 OH 50H5	oc = organic cont	om, percen	•		
	Sample Informat	ion								
	- Campio ini Griniai							_		Т
		_						Unified Classification	= =	_ ا
		/er)			Sample Description and Classification		l d	ة <u>⊒</u> ز	tica	lion I
Depth		Recovery	Time				PID (ppm)	ifie	Analytical Collected (Y/N)	Elevation
	Sample No.	Re	ı≟				_	5 ಕ	₹85	Ĕ
30	Run #7 30 - 35	4.8	950		wn to olive brown fine to coarse sand and grav	vel	0.1			
				with a trace	e of silt and cobbles. Wet, massive.			GW		
				22 24! I :-1			0.1			
					nt olive gray to olive brown gravel with fine to and cobbles and a little to traces of silt.					
	OC-SB-462-31/33-XXX		1015	coarse sand	and coopies and a nitie to traces of site.		0.2		YES	
				34-35' Gra	y to light gray cobble and gravel rock fragmen	ts in		GW/0	GM	
				rock flour v	vith fine to coarse sand and silt.		0.4			
				<b>.</b>	6 1 2411					<u> </u>
			шш		p of rock = 34' bgs. poring = 35' bgs.					
35				Bottom of t	Joinig – 55 logs.		0.7			
40										
40										-
<del></del>										
45										
Note			1				<u> </u>	<u> </u>	1	
						Jeny 1	12. (	Rai	ulffe	/
					e gradual. Water level readings have been made at times	Page	3 of 3	3		
					nan those present at the time measurements were made.		~ 01 4	-		
						Boring:		SI	B-462	

	MACT	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client:	Boring: 5B-463 File No.:			
Operator: Grey Hallide, Bore Holl Logged By: Teny Cawcliffe August 15. Checked By: CTM Sampler: Date Start/Finish: 9 1 0 9 Hammer				Method: Roro Sanic e ID/OD: 6"00 IOD: 47/200 inner casing/6"00 ortes oasing Welfall: NA vel3: 26-7'865 Basedian soil	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent oc = Organic Content, percent			
Depth	Sample Informa	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
_	Sample No.    Rew # 1 0 - 5     0(-56-463-0/1.0 -	4.8	13:00	0-0.8 Gray to durigung fire to course sundandgrand with a little site. Mosst, (Pormer soil tradment (El)) 0.8-2.5 Grando light brown fine to me sund with some fine to me sund with some fine to me sund with some fine to me sund with some frances. head of fixet u with 16-2 DGS.	_	e.)	400	ш
5	Run#2 5-10	4.9	1300	2.5-5.0 Darkboroun Rive to medin sond coarse sund and gravel with rives of Morst, massive, no unusual octors.	= 2.4	50y/ /59		
	OC-50-463-6/8-	<b>1</b> 22	(310	with with some to a lettle coarse sound ground. Very moist. No invergel of our sist on sand with trusts of course sound and si West, some stratibuters with deflevent col	Edien =0.3 b. oredlyges.	SP		
10	Run #3 10-15	5.0	13/6	Greenstained layor at 2.7.5. 7.5-10.0 - Brown to darkbrown fine to sund with trues of coarse sand and strath hed. Slight "metallic" odor. 10-15 Olive brown to brown to light	=1.9			
				olite gray fine to medium sandwish, course send in some areas/luyer and in site in some weak/luyers. Wet stratific uniture grain Size. No suverel out	muse of ev			
15 Note					-J.1			Ų
Note	25				*			
Strati	fication lines represent approximate to inder conditions stated. Fluctuations	oundaries between groundwater	een soil types, may occur due	to other factors than those present at the time measurements were made.	Page / ⊅ € Boring: Sß -		3	

MACTEC	Project: Olin Chemical Superfund  Location: Wilmington, M  Client:	Boring: SB-463 File No.:			
Contractor: Board home year Operator: Greg Hallida; Logged By: Tem Rawcliffe Checked By: Cim Date Start/Finish: 91109 Boring Location: Area 3 Ref. Elevation <sup>1</sup> :	Drilling Method: Roma Sanic Bore Hole ID/OD: 600  Auger ID/OD: 47,000 inner casing/600 orles ocish Sampler: Dave Chappeners Hammer Wt./ Fall: NA Water Level3: 26-7 B66 based on Soils	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressive Strength (psf) was = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent oe = Organic Content, percert			
Sample Information  the state of the state o	Sample Description and Classifica	Unifie Classi Analy Collec (Y/N)			
15 ((m #4 15-20 4.9	1325 15-16 Brown to olive bown fixetom Sandwith a life to a torce of cioarse 16-15.5 Brown fine to coarse sand wat, cru dely stratified with fines too areas. Week rouge of grain fixe 18.5-20 Brown fine to coarse of biet, some layery/stratification of and fines comined areas. No unis	sund grave ursergues but			
20 Runt 5 20-25 4.6	1350  20-21.5 Brown to olive brown And medium sound with torces of co are sit. Wet, uniform, stratified apperaised with the tocoare of a grandwith site out to the tocoare was sul- stratified or through the sound fine to coarse such state of the tocoare such sight olive gray cophlesard or fine to coarse sand with sources of the tocoarse sand wit	etto PID=0.1 5P escretarial muse, sandard = 0.2 cm			
Rum #6 25-30 3,5	1410 25-27 hight sline gray fractococr soul and grander the somesite in colorles. Wet, massin 27-27.5 Colorles.  27.5-30 Olive to viewe boro A' of soul and gravel with so and twens of colorles, Wit, mass Nounsual odors	23.4			
Notes  Stratification lines represent approximate Applications between	een soil types, transitions may be gradual. Water level readings have been made at times may occur due to other factors than those present at the time measurements were made.	Page 2 of 3			

				D 1.4. OF CL 1.10 S 103				
	JAM TA COTT	TO		Project: Olin Chemical Superfund Site	-		/ ->	
MACTEC				Location: Wilmington, Mt. Boring: 5B-46		25		
				Client: File No.:				
1				Silent.	1 110 110			
-	Δ [		Ta		5 # 41	_	-	
Cont	ractor: Beart home	yeran		Method: Runsonic	Definitions: S = Split Spoon Sample			
				le ID/OD: 6 00	U = Thin Wall Tube Sample	;		
	jed By: Jeny Rawc	little	Auger ID	NOD: 47/800 inner cusing/600 orter ocusing	R = Rock Core Sample V = Insitu Vone Shear Test			
	ked By: Th		Sampler	: Dave Chapman	q, = Unconfined Compressi		sf)	
Date	Start/Finish: 9109		Hammer	Wt./ Fall: NA	woh = weight of 140 lb. har wor = weight of rods	nmer		
Bori	ng Location: Aren 3		Water Le	evel: 26-7 BGS loaced on 5075 1 We= Water				
Ref.	Elevation':				oe = Organic Content, perce	: TT		
	Sample Informati	ion						<del></del>
			I			5		
						Unified	<b>-</b> _	
-		e Z	1	Sample Description and Classification		- E	te a	u <sub>o</sub>
€		Š				isi	اے ق کے	/ati
Depth	Sample No.	Recovery	Time			Unified	Analytical Collected (Y/N)	Elevation
70				23-72 01 1 1 0	. 44.0	120	405	ш
ادرا	Runt 7 30-325	2.4	1440	130 31 sime dool an lyman fixe to coarse	sul Pill=0,4	Colul		
			1	and grant with cololes and all thesitre in	let mussul.	,		
				31-32 = Grantoline Arres commella. 1. 1	11 50.5			
				Lucator some	acces with 200	ye		
				30-31 Olive to olun known fix to coarse. and grand with cobbles and a little site. u. 31-32 = Gray to olive gray gravel and col five to course soul and some sto alith site.	West, =0.3	GM		
				massa rame ammonia-like sucor.				
				32-32 Culobles.				
1			-					
			<del> </del>	Retrient Top of Gederal = 31 BCS				
-3,			<del> </del>	Bottom of boning =32.5' BGS				
35			-	DONOM OF WHOMING -30.3 565		1		
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NOTE	<u>s</u>							
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C+	ication lines margaret annoviments L	and line hotel	non soil hones	transitions may be gradual. Water level readings have been made at times	Page 5 /	_		
and	der conditions stated. Fluctuations of	f groundwater	may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 364 Boring: 56	く		
		Wn				110		- 1
A	eny Ceurcy	11/			Boring: 50	-46	3	
- W	() #	11						
		V						

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, M.J.  Client:	Boring: SB-り6 Y File No.:			
Operator: Gray Italian Bore Hol Logged By: Teny Cawcille Augorith Checked By: Sampler: Date Start/Finish: 91109 Hammer				Method: Run Sonic  ple ID/OD: 6000  BOD: 47/400 in our casine /6000 order casine  it: Dave Chapmens  it Wt./ Fall: NA  evel 3: 6-6.51066 byzed on 5611  Definitions:  S=Split Spoon Sample  U=Thin Wall Tube Sample  R Rock Core Sample  V= Inside Wase Shear Tech  q= Unconfined Compressi  wh = weight of 140 lb. ham  wer = weight of rods  we = Water Content, percen  oe = Organic Content, percen  oe = Organic Content, percen		st sive Strength (psf) unimer		
Depth	Sample Informa Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	UC-5B-414-0/1.0	2.5	1545 1550	1 1 1 1 1 1	ge brown PID=0,5 massing. 20.3	SP	Yos	
5				A STATE OF S	20.4 20.3			
	Cunt 25-10 0C-SB-464-5/7-x	4.4	1550	5-6 Brownso light roldish brown fine to median scared with orress of gravel of scared and site. 6-6.5 Light office gray Live to inclum se troses of grown and course sand Voyano	nd wilzony		Ves	
10				6.5-8 Brown to light reddish brown f Sound with a little co arresond. Well 6-9 Gray Pinetomedius sound with at act 9-10 hight brown Pinetowedius sound of trees of coarse sound, wort. No russ	note 20.2 milodore	ud. 50		
	Ren#3 10-15	4.5	1600	10-11.5 Gray to olingary fine to medin s in the little coarse said and transof site. Blackstained layer 5-10 mm that at \$ 11365	Wet, street he	SP		
15				11.5-15 Brown to dark brown him to wed with a little course send. Wet, stratified Some coarse graned overs. No unsul	en saul with 20.2 Delors, 20.2	5P		ig all
Note	<u>95</u>							
Strati and u	fication lines represent approximate uper conditions stated. Fluctuations	o groundwater	een soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / of Boring: SB			

	188	T-0		Project: Olin Chemical Superfund		,		
MACTEC				Location: Wilmington,	Boring: SB-464			
	Wind			Client: File No.:		•		
Contr	ractor: Racint la Assa	1101015	Drilling	Method: Rono Sanic	Definitions:			
				le ID/OD: (6° DQ)	S = Split Spoon Sample			
Logged By: Jen Rawcliffe Augori				SIOD: 47/900 inner cusing/600 ortes oasing	U = Thin Wall Tube Sample R = Rock Core Sample			
Chec	ked By: CTM	11175	Sampler	: Oan Chepmen	V = Insitu Vane Shear Test q <sub>s</sub> = Unconfined Compressi			
Date	Start/Finish: 9109	£ 1/2		Wt./ Fall: NA	woh = weight of 140 lb. han wor = weight of rods			
	ng Location: Avea 3		Water Le	evel3: 6-6.5'BGS bused on soult	at .			
Ref. E	Elevation <sup>1</sup> :	2 - 5-2			oe = Organic Content, perce	en'		
	Sample Information	tion						
1						Unified Classification Analytical Collected (YN)		
ш		يَ		Sample Description and Classification		Unified Classificat Analytical Collected (Y/N)		
<b>&amp;</b>		Recovery	0	Cumple Description and Glassification		Unified Classifica Analytica Collected (Y/N)		
Depth	Sample No.	Sec.	Time			ie Kollas		
	Runty 15-20	4.2	1610	15 de Bourt de la bour 6 40 cha madein		120 40 C W		
l" '	Man # 1 13 - 20	[1.64	110.0	15-10 Brown to light brown fine to weden sun with a lifte coarse sculoud	0-012	SO		
lŀ			1	1 constant in last	OF			
		-	<del> </del>	16-17 Brown fine to course sand and gr	rivel			
1 1	<del></del>			with trace of 51/2		sug		
$\vdash$		<u> </u>			0 0	10		
			<del> </del>	17-20 Olive to white gray f and grown with some co Eit. Wet massing.	peyel	GW		
-		<u> </u>	<del> </del>	angul growil with serie co	uro	1		
l ·		ļ	<del> </del>					
ا ا				No unusual addos				
20	N 4		11.00		*			
	Dun#520-25	2.2	1625					
I ⊦		,	<del>                                     </del>	sound and grown with some sits.	ourse			
			ļ	sound and grown with some site.	eurl a 2	Guy		
			ļ	trues of coistiles. Wet, mussine, nou	nucual			
			<u> </u>	odors.				
			ļ					
				(Cobbile user = 25.5-2)				
				Coolin ages 2 2713-2				
	Burt 6 25 32							
l L	Runte 6 25-32	5.6	1640	35-26.5 Olive to light ship swap finetoco. sand and ground with cololles her 6-ones Wet makes. No un sand advote, 26.5-28 higher sime brown time to con 12e 5 grandand site wet, massive.	JEPP(D= 2.4			
				sand and ground with cobbles beed somes	de.	Gus		
			<u> </u>	Wet marker. Nounsel gelore.	22.8	16W		
	0c-50-464-26/28	-11/14	1650	126.5-28 hight of we brown the occurre		Yes		
	, , , , , , , , , , , , , , , , , , , ,			ground sin was messure.	25,2			
				25-30,5 Gray to other gray file to course grand and s, to wet, massor. No van 30.5-32 Cobbles undgrand in the to course site for werend up h.	Surel with	Can		
				grundame s, 40. Wet, via sor. No vu	1scal odes 7.8			
				30.5-32 Cobbles uniquely of the tocave	Sundand			
				SITE (provened with).	25.4			
30				Ostemuteltopot toth = 30.5' BGS	23.1			
Notes	S			Ostimutel top of toth = 30.5' B65  Do tom of Boring = 32'B65  respond to aring where soil  ling through collaboration				
51	aboly chainted P	10 real	Um CO	me noul to aring where soil				
I I	are waren to to	och Pr	ma cli	Noise of horacle a debles and only				
~	and Andrews And And	•	- Dat	3		*		
			Ti .	Commence of the same of the sa				
				transitions may be gradual. Water level readings have been made at times	Page 2 of	62		
and un	dei conditions seated. Pluctuations	or groundwater	may occur due	to other factors than those present at the time measurements were made.		·		
4	eny (Carly)				Boring: 58	-464		
V						/ :- /		

	MACTEC		Project: Olin Chemical Superfund Site  Location: Wilmington, MJ  Boring: St  File No.:	3-41	65				
Che Date Bori	ractor: Beant home year rator: John Graffer ged By: Terry Rawolff cked By: Start/Finish: 4/1/19 ng Location: Then 3 Elevation':	Bore Hol Auger ID Sampler: Hammer	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample V = Insitu Vane Shear Tes  Q = Unconfined Computer VL/Fall: NA  el³: A G OGS back don Sall  Definitions: S = Split Spoon Sample U = Thin Wall Tube Sample V = Insitu Vane Shear Tes Q = Unconfined Computer Wall of I 40 lb. ha wor weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha wer weight of I 40 lb. ha were weight of	imple ; Test vressive Strength (psf) h hammer erecnt					
Depth	Sample Information	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation			
	00-5 B-465-0/1.2-xxx	U735	0-1.4- Concrete s halo 1.4-2.5 higher brown brown medium send with some to a little grown property traces of colobles. Mois	50/ 5W	Yes				
5			25-5 Brown fire to medius the of course sound and was worked ors.	50					
	Run#25-10 5.0	0735	5-6.5 Brown to dark bro A wellen sund with little to traces of course send queel and traces of cobbles. Very moist to met, slight struk hied appearements, quite conhund 6.5-7.7 Dork reduling brown to reddiff brown	SP					
10	DC-50-465-8910-222/00P	0745	his to median sand with thoses of sand with shirld appearace; no to be a sand to a function of comedan sand to a subbase to a trong of course sand. Detistatilely our subbase of	50	Yes				
	Run#3 10-15 4.8	6745	10-11.5 Similar to 7.5-10 internal.  11.5-12 high reddibly vange brown fine to median send with tries of site and coorce send wet, well strat mid with this reddibly vous structly ex 204 2-13.5 high brown fire to median sund with	5P					
15			torren of Gift. West.  13.5-15 Brown Fire to coapse sand. West,  10 apparent structure. No unusual odors, = 0.3  20.2						
Note	<u>es</u>								
			nastitions may be gradual. Water level readings have been made at times other factors than those present at the time measurements were made.  Boring: 5&	43 468	_				

The second section of the section of the sect

		TEC	Clier	ation: Wilmington, MA.	Boring: 5	B-465
Log Che Date Bor	ntractor: Board No. erator: Tolan Gragdia gged By: Terry Co. ecked By: The estart/Finish: 9 204 ing Location: Aven Elevation:	weliffe	Auger ID/OD: Sampler: O Hammer Wt./ F	47/400 inner consing/6000 orter our	q, = Unconfined Compre woh = weight of 140 lb. wor = weight of rods wc = Water Content per	est est sssive Strength (psf) sammer
Depth	Sample Inform Sample No.	Recovery	Time	Sample Description and Classific	oc "Organic Content, per	Unified Classification Analytical Collected (Y/N) Elevation
15	Runtay 15-20 00-56-465-16/18	3.7 (-XXX	10-1 Su lun	Brown fine to course sunt our in the ground. Wet, becomes come to be with fine a condensation from the condensation from the other groups of by the other of the other groups.	rser with depth. towedow & D.1 s. Wet, some	SP/SW Yes
20	Runts 20-25	4,5 0	605 2U- 8	- 20' highe office to office gray of and gravel with some solor of abobles. West, massino	olue grus PIO=ON	GNY GNY
5 2	m#6 25-30	3.7 0	what	massive Woundsval octors	footbles	
			29-30 53meg	Olive to olive brown fine to corre polymus with a little site and to es. (Grandly/Estelle luperat 228-2 trath inton. Wide mye vignen some Olive to olive gray fireto coars mul and a little site land cotals. In soul octors.	soul PID=a1 ( resuf 9'). into, some 20.1	En
tes						
nuer co	lines representable proximate bounds inditions stated. Fluctuations of gro	arfes between soil to	ypes, transitions may be or due to other factors th	gradual. Water level readings have been made at times an those present at the time measurements were made.	Page 2 of 3 Boring: 58 - 4	65

	MACI	EC		Project: Olin Chemical Superfund Site Location: Wilmington, MV.  Client: Olin  File No.:	3-4	65	
Con	tractor: Board house	yerar	Drilling I	ethod: Robo Sonic Definitions:			
Ope	rator: John Graglia	17/-	Bore Ho	ID/OD: ( が ひ む)  S = Split Spoon Sample U = Thin Wall Tube Samp	le	4.	
Logo	ged By: Terry Rawa cked By: CTM	little	Auger ID	DD: 47/200 in ner cursing / 6000 0 Ner Ociche  R-Rock Cor Sample Valuativan Shear Te			
Cned	Start/Finish: 9/2/09		Sampler	Unconfined Compress	ive Strength	(psf)	
	ng Location: Area 3		Waterle	wor = weight of rods			
	Elevation1:		1114101 20	we = Water Content, perce oc = Organic Content, perce	nt en		
	Sample Informat	ion					
Depth		Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	noite volu
å	Sample No.		F		15 8	30 A	<u> </u>
20	Lunt 7 30-34	to coarse sent with some fine sent and gravel.  Wet, massue. No unusulador. =0.2					
34	-/>	1	ZY	32.5-34 Gray to dark gray chocoboc verze such and grand with Colobbs and rochethows (Privayed roch). Estructe top of veck= 32.5'B6 S Bottom of bong = 34'B6 S			
				5200 and 64 many 234 156 5			_
1							
-							
			27.10				
+							
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L							
			CONC. PC				



6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.:

**Definitions:** 

**SB-465** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: John Graglia Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing

Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 9/2/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 3** Water Level: ~6' bgs based on soils

Ref. Elevation:

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of 140 lb. name wor = weight of rods wc = Water Content, percent oc = Organic Content, percent

	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	2.2	730	0-1.4' Concrete slab.				
	OC-SB-465-0/1.0-XXX		735	1.4-2.5' Light brown to brown fine to medium sand with some to a little gravel, coarse sand, and traces of cobbles.  Moist, massive.	0	SP/SW	YES	
				2.5-5' Brown fine to medium sand with traces of coarse sand and gravel. Moist, massive, no unusual odors.	0	SP		
5					0.1			
	Run #2 5 - 10	5.0	735	5-6.5' Brown to dark brown fine to medium sand with little to traces of coarse sand, gravel, and traces of cobbles. Very moist to wet, slight stratified appearance, quite uniform. 6.5-7.5' Dark reddish brown to reddish brown fine to medium	0.2	SP		
				sand with traces of coarse sand. Wet, slight stratified appearance, root fibers at top of interval.  7.5-10' Brown fine to medium sand with a little to a trace of	0.1 0.3			
	OC-SB-465-8/10-XXX		745	coarse sand. Wet, stratified.	0.2	SP	YES	
10			743	No unusual odors.	0.8		1 E3	
	Run #3 10 - 15	4.8	745	10-11.5' Similar to 7.5-10' interval.	0.6			
				11.5-12' Light reddish/orange brown fine to medium sand with traces of silt and coarse sand. Wet, well stratified with a	1.5			
				thin reddish (iron) stained layers.  12-13.5' Light brown fine to medium sand with traces of silt.  Wet.	0.4 0.2	SP		
15				13.5-15' Brown fine to coarse sand. Wet, no apparent structure.  No unusual odors.	0.3			
Note			<u> </u>		0.2	1		
	<del></del>			Jen	Γ7<.	Rai	wlffe	/

Page 1 of 3

**Boring:** 

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

	Mar			Project: Olin Chemical Superfund Site					
	<b>MACT</b>	ΈC		Location: Wilmington, MA	Boring:		SI	<b>3-465</b>	
				Client: Olin	File No.:				
				6107090016-09					
Con	tractor: Boart Longyear		Drilling N	Method: RotoSonic	<b>Definitions:</b>				
Ope	rator: John Graglia		Bore Hol	e ID/OD: 6" OD	S = Split Spoon Sar U = Thin Wall Tub	e Sample			
Log	ged By: Jerry Rawcliffe		Casing II	D/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core San V = Insitu Vane Sh				
Che	cked By: CTM		Sampler	Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 14			(psf)	
	Start/Finish: 9/2/2009			Wt./ Fall: NA	wor = weight of roo wc = Water Conten	ds			
	ng Location: Area 3		Water Le	vel: ~6' bgs based on soils	oc = Organic Conte		t		
Ref.	Elevation:								
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	3.7	755	15-16' Brown fine to coarse sand with some to a little grav Wet, becomes coarse with depth.	vel.	0.1	SP/SV		
	OC-SB-465-16/18-XXX		825	16-17.8' Brown coarse sand with fine to medium sand and gravel and a little cobbles. Wet, some large scale stratification.	l	0.1	GW/S	YES W	
				17.8-20' Light olive to olive gray fine to coarse sand and gravel with some silt and traces of cobbles. Wet, massive.		0.1	GM/C	} }W 	
20						0.1			
	Run #5 20 - 25	4.5	805						
				20-24' Olive gray to slightly greenish olive gray fine to co- sand and silt and gravel and a little cobbles. Wet, massive		0.1	GM		
						0.1			
				24-25' Olive to olive brown fine to coarse sand and silt wigravel and traces of cobbles. Wet, massive.	th	0.1			

25-29' Olive to olive brown fine to coarse sand and gravel with a little silt and traces of cobbles. (gravelly/cobble layer at

29-30' Olive to olive gray fine to coarse sand with some

gravel and a little silt and cobbles. Wet.

~28-29'). Wet, some crude stratification, wide range of grain

30 Notes

Run #6 25 - 30

3.7

815

Jerry 7. Rawlffe

0.5

0.1

0.1

0.1

0.1

GW/GM

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

No unusual odors.

sizes.

Page 2 of 3

	MACT	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA  Client: Olin 6107090016-09	Boring: File No.:		SE	B-465	
Cont	ractor: Boart Longyear		Drilling N	ethod: RotoSonic	<b>Definitions:</b>				
Oper	ator: John Graglia		Bore Hol	e ID/OD: 6" OD	S = Split Spoon Sa U = Thin Wall Tub	e Sample			
Logg	ed By: Jerry Rawcliffe		Casing II	O/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sar V = Insitu Vane S	hear Test			
	ked By: CTM			Dave Chapman	q <sub>p</sub> = Unconfined C woh = weight of 14			psf)	
_	Start/Finish: 9/2/2009			Wt./ Fall: NA	wor = weight of ro wc = Water Conter				
	g Location: Area 3		Water Le	vel: ~6' bgs based on soils	oc = Organic Conte				
Ret. I	Elevation:								
	Sample Informat	ion						1	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
30	Run #7 30 - 34	3.5	830	30-32.5' Brown to olive brown medium to coarse sand w	ith	0.2			
				some fine sand and gravel. Wet, massive. No unusual od 32.5-34' Gray to dark gray fine to coarse sand and gravel with cobbles and rock flour (Pulverized rock).	or.	0.2			
				Estimate top of rock = 32.5' bgs.		Ш			ШП
				Bottom of boring = 34' bgs.		0.5			
35									
1									
<u> </u>									
40									
.0									
			ļ						
15			<u> </u>						
45	•					1			
<u>Note</u>	<u> </u>				Jeny 7	<i>2.</i> €	Zaw	He	/
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page Boring:	3 of 3		3-465	

MACTEC	Project: Olin Chemical Superfund Site Location: Wilmington, M. Client: Olin	Boring: 5	13-46	6
Operator: Grand Allice Bore Logged By: Terry Cawcliffe Allige Checked By: Terry Cawcliffe Samp Date Start/Finish: 4 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	g Method: Rors Sonic Hole ID/OD: 6000  18/00: 47/800 inner cacing/6000 ortes casing her: Daye Chapmens her Wt./ Fall: NA Level3: 27-8: Based of soil observations	Definitions: S = Split Spon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q = Unconfined Compressiv woh = weight of 140 lb. har wor = weight of fods we = Water Conlent, percent oe = Organic Content, percent	ve Strength (psf) numer	
Sample Information  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.	Sample Description and Classification		Unified Classification Analytical Collected	Elevation
UC-513-4161-1/1.0-xxx 1750	of st +.  0.8-2.5 Brown to light brown fine of		sp sp	
5 But 2 5-15 131	do come sand la la hige			5
(And A-seigh)  06-5B-766-6/8-22 1357	26.5 dilled +07.5 on rucho Soil  horns the touch from cobble/roc  5-10 2nd Avery - higher policy And	that $= 42$	Sey Yes	19 FE
10 Run#3 10-15 2,5 1410	Top of sample is olive to olive going mustarell fine surlaist govern	9		
	Granditticult drilling  Bottom of sample is Briver course  gravel with a little colobles and we send. Wet, massing	sund and dien; 209	Sur	
Notes  Encurred refusal at a Jud A V=41 5-10. head at supple organical. Very a	from dulling	n le Engle-l	art bar	59.4
Stratification lines represent approximate boundaries between soil by and under conditions stated. Fluctuations of deundwater may occur	were made,	Page / o/- Boring: <i>5ይ</i> -	3.	

	dela			Project: Olin Chemical Superfund Site				
	MACT	CEC		Α. Λ		<b>^</b>		
				Location: Wilmington, Mit.	Boring: 51	3-46	06	
				Client: Olin	File No.:			
_								
Con	stractor: Board how	9 yerrur	Drilling I	Method: Ruro Sanic	Definitions:			
	erator: Grey Hallid		Bore Ho	le ID/OD: 600	S = Split Spoon Sample			
Log	ged By. Terry Raw	cliffe	Augerit	100: 47/800 inner cusing/600 outer casing	U = Thin Wall Tube Sample R = Rock Core Sample			
	cked By: Om		Sampler	Jane May many	V = Insitu Vane Shear Test q, = Unconfined Compressi	so Strenath (	0	
	e Start/Finish: 9 8 00	1	Hammer	Wt./ Fall: A/A	woh = weight of 140 lb, har	गमाना गमाना	psi)	
	ing Location: Aren	<u> </u>	Water Le	evel3: \$7.81 665 basedon soil descartions	wor = weight of rods we = Water Content, percen	1		
Ker.	Elevation¹:				oc = Organic Content, perce	in'		
	Sample Informa	tion						
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ء ا		Ver		Sample Description and Classification		اين ہے ا	ica	5
Depth		Recovery	Time			fie	le c	ati
<u> </u>	Sample No.					Unified Classification	Analytical Collected (Y/N)	Elevation
15	KU144 15-20	3.4	1420	15-18' Blown to light brown course sund culquel with some medius sa wares of time Sout wer.	0.10		400	
i .				sund configuration of the	P10=0,6	50		
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				11 3000 01 71 00 00 00 00 00	-0.3			
				15-20 higher brown toborny fine to	and in			
1				Sund with a little to truck of coorse sen	1 lah			-
				No un sul olors detected	20.3	1 1		
1				18 JUNUSING ONASIS DEPENDED.				1
ı						SP		
20					205			1
	Run#5 20-25	3,5	1450	20 aml 1 . 1 . 1		-		
	THE STATE OF THE S	712	1.7	10-15 might brown medica to course	P18 = 0 4			
1	, , , , , , , , , , , , , , , , , , ,	<del> </del>	<del> </del>	sund with the sand orderen	il.	50		
1		<del> </del>		so-25' highe brown medien to course suit with overes or fine sand on famue Wet slight stratifical appendix. Become slightly fines with death.	26			
		<del> </del>	<del>                                     </del>	slightly times with death.	203			N 1
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25	A 11				73.2			
1	Runtle 25-30	3.7	1510	25-30 higher brown mediunto course sund with a little to to trace of fine sound and oprawel, Wet, massin, contra				
				Sund with a little to be to	e pin=0.3		. 1	- 1
		<u> </u>		sund with a time to the truck of time		car		- 1
				source apricul, wet massing contra	us zoiy	38		- 1
				shalo more gravel at the Gottom of	-0.4	13W		
				the interval			-	
1				THE (MET NOT)	20.3	-		- 1
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Stenet	firstian lines represent an amus	O. Contraction		-24				
and u	der conditions stated. Fluctuations	of proundwater	en son types, i may occur due	ransitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of	?		
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	Jeny Karry	1 X		ls ls	Boring: 58-	4/1	J	
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1	MACT	EC		Location: Wilmington, Mt.	Boring: S&	2-4	1000	
1				Clients	ile No.:	,	<i>•••</i>	
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Can			I					
Con	tractor: Board home	a yerrur	Drilling I		Definitions:			
	rator: Gregotallaley	- ~			i = Split Spoon Sample J≈ Thin Wall Tube Somple			
	ged By. Jeny Kawa	litte	Augurit	VOD: 4/800 inner cusine /1000 porter origina IR	t = Rock Core Sample			
Che	cked By: OTM		Sampler	· David / Market and C	= Insitu Vane Shear Test			
Date	Start/Finish: 4804		Hammer	1044 4 = 11 4 6 60	⇒ = Unconfined Compressive reh = weight of 140 lb. harr		(pst)	
Bori	ng Location: Area 2		Water Le	vel3. + Seci Dr. C. R. I I "	rer = weight of rods			
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	Sample Informati	tion						
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اء ا		§		Sample Description and Classification		9 ij	te	0
Depth	20	Recovery	Time	·		fie	de de	/at
<u> </u>	Sample No. 33		F.			Unified Classification	Analytical Collected (Y/N)	Elevation
30	Run#7 30-35	2.6	1545	30-30.5 Bounts dive brown fine to course sul and gravel with some with	0.0.		400	
				course Sul and grown with some will	11020.3	6H/6	$\nu$	
	06-513-416-30/32	V.11	1550	11 11 11 11 11 11 11 11 11 11 11 11 11	ws. West.	10.	W	
	5 5 7 1 5 1 5 5 7 7 5 0 5 5 7 5 0 5 5 7 5 0 5 5 5 5	1000	1220	30.5-32 Olive brund-oolivedo duhloli	20.4		125	
			<del> </del>	30.5-32 Olive brown to slive to dorled in	ithe			
			<b></b>	10 10				
l			ļ	litterit and some aboles. Wet masser	20.8			
		L		32-37 Dorholus apry few course sail as becoming light gray so de Royards.	Ignerel			
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Stratif	ication lines represent annovirusts M	auntiblica has	on soil be	transitions may be gradual. Water level readings have been made at times				
and u	nder conditions stated Fluctuations	of proundwater	may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	ige 3	?		
	Dun Kaust	1/1/1		measurants Here maye,	oring: SB	J		- 1
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Ope Loge Chee Date Bori	ractor: Board hone rator: Over Halled ged By: Teny Cawa cked By: The Start/Finish: 9 109 ng Location: Aren 3 Elevation':	He	Bore Hol Auger ID Sampler: Hammer	OD: 47800 inner cusing 16°010 over oasm Dane Chegrens  Nt. Fall: NA  vel3: 25-6 BGS by sad on Spils  we what Content percent	S = Spin Spoon Sample U = Thin Wall Tube Sample R = Rock Care Sample V = Insin Vane Shear Test q, = Unconfuned Compressive Strength (psf) wash = weight of 140 lb, hammer			
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation	
	DC-50-467-U/).	- XXX	1555	0-1 Park brown fire-nation send with PID= o some coarse sundand a little grown and site Moist, gross sund root Potros. (Topsoil have): = 1.2.5 Dark brown fire to woodyn sand with a little coarse sand and ground and torses of sele	50/su			
				Moist, massive, (f.11?).  2.5-2.9 very durkly ments weth fine suntand organismeteral file opening well demonstered (Former Crown sor 2.9-5 Reddict brown fine to modern sound =0 with a 11/6/10 torresots it.	sp	)		
5		4.9 (X/D) (N/S/NSU)	1620	5-7.5 Brown to reddish brown him to PID=0.1 medium sund with a trace of course sound Wet, reddish (Iron) stained (agers 2-10mm that From 26-7.5'865. Normscand afters	SP			
				Sound with traces of coarse gand condside.  West, slightly stratified with some ordina to  ("row) strived layers.	G			
υ	Run#3 10-15	4.7		10-12 Brun to olive brown Rine to PID=0:2 medium sund with trues of 57th, Vest. 12-15' Brun to olive brown granelwith =0:4 some medium co correspond on truces of	58 GW	Ð		
				fine sour and cotables. Wet, some 20:1 streatification No convend odors. 20	GP			
ote tratifi		opdaries betwee	n soil types, tr ay occur due t	institions may be gradual. Water level readings have been made at times page other factors than those present at the time measurements were made.		3		

				Project: Olin Chemical Superfund Site Location: Wilmington, M Client:	Boring: $SB-467$ File No.:
Con	tractor: Board how	a yerrus			Definitions:
Ope	rator: Grea Hallida	JV			S = Spin Spoon Sample
Log	ged By: Tem Raw	A.He	Major 16	100: 47/800 inner cusine /1000 outer ou	R=Rock Care Sample
Che	cked By: CTM		Sampler	Dave Change	J - man vale sheat resi
	Start/Finish: 9/2/04				woh = weight of 140 lb. hammer
	ing Location: Aven	₹			wor = weight of rods
	Elevation':		1	10 10 Des Dasas en Solls	ee = Organic Content, percent
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l	Sample Informa	uon			
ے		very		Sample Description and Classi	tication ad title at to the ad title at to the ad title at to the ad title at to the ad title at the ad title
Depth			Ê		
	Sample No.			(0)	30 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0
15	Pevnty 15-20	4.7	1640	15-A19 Bownto white bourse	PID=0.1 GP
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				and collaboration in the	S OF MERCEST SECOND GW
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l				grewel ant traces of corbles	Lilat GW GW - WA
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20	Run \$5 20-25	4.1	1655	20-21. 5 Oline brown to darkbrown	Ab=0
				to cooke Sand, wet.	
				21-25 Olive to alive hower Anest	Deadle Mai
1				Suntand anuclar the obbleson	NELS ABOUGHT
				West, massine	GW
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وعن	Runtle 25-30	7,	1703	23- Ap Dryunto vine Drum medius -	o course PIVI = 0 Prsul
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andan	ncauon mes represent approximate to nder conditions stated. Fluctuations	of groundwater i	en son types, t nay occur due	ransuons may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 2 of 3
()	10440 N/ VV	VI			1
0	my Janey	//			Boring: 56-41/27
	0	CTEC Location: Wilmington, Mt. Boring: SB-467 File No.:  Client: Client: Wilmington, Mt. Boring: SB-467 File No.:  Creat year Drilling Method: Roto Sonic  Chief Bore Hole Divor. (A DO  auchitle Stampler: Dave Check puth and  Wilmington Thouse Check puth and  Water Level? 25-6/Bes based on Soits  Sample Description and Classification  Barried Comman power  """ """ Consider power  """ """ """ Consider power  """ """ """ Consider power  """ """ """ Consider power  """ """ """ Consider power  """ """ """ """ """ """ """ """ """ "			
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	MACT	,		Project: Olin Chemical Sup Location: Wilming & Client:	rfund Site	A.	Boring: 58 File No.:	-4	67		
ogge heck Date S Boring	tor: Boath home tor: Grey Halling d By: Teny Rawc ed By: CIM start/Finish: 91409 Location: Area 3 levation!	liffe '	Bore Hol Auger ID Sampler Hammer	Method: Roto Sonic e ID/OD: 6°00 MOD: 47800 inner casing/ Oave Chapman Wt/Fall: NA vel3: 205-6 Based on 30	es oasmy	Definitions:  S = Spils Spoon Sample U = Thin Well Tobe Sample R = Rock Core Sample V = Institu Yune Shear Test Q = Unconfined Compressive Strength (psf) web = weight of 140 lb. hammer way = weight of rocb w = Water Content, percent oe = Organic Content, percert					
Depth	Sample Informat	Recovery	Time			Classification		Unified Classification	Analytical Collected (Y/N)		
0	Kun# 730-32 K-50-467-30/52-	3.2	1725	30-31 Olive basure to underval with Sills 31-32 Our gray to go grandend corbber (pr	live fin ing silt horsel	finto cocree	sund Piozo zescul 2017	4			
-				Estimated dopot of Bottom of borin	och= 36	11865 11865					
otes										1	
tratificat	tion lines represent approximals by r conditions stated. Fluttuitions o	undaries betwee	en soil types, t	ransitions may be gradual. Water level readings to other factors than those present at the time me	ave been made	at times	Page 3 of	3		_	



6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.:

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Greg Halliday Bore Hole ID/OD: 6" OD

Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing

Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 9/2/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 3** Water Level: ~5-6' bgs based on soils

Ref. Elevation:

**Definitions:** 

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

**SB-467** 

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 OC-SB-467-0/1.0-XXX	3.8	1555	0-1' Dark brown fine to medium sand with some coarse sand	0		YES	
	OC-5B-407-0/1.0-XXX		1605	and a little gravel and silt. Moist, grass and root fibers. (Topsoil Loam).	U	SP/SW		
				1-2.5' Dark brown fine to medium sand with a little coarse sand and gravel and traces of silt. Moist, massive (Fill?).	0.1	3F/3 V	Y	
				2.5-2.9' Very dark brown to black fine sand and organic material (fine grained, well decomposed/ Possible former ground surface).				
				2.9-5' Reddish brown fine to medium sand with a little to	0	SP		
5				traces of silt. Very moist.		51		
	Run #2 5 - 10	4.9	1610					
				5-7.5' Brown to reddish brown fine to medium sand with a trace of coarse sand. Wet, reddish (iron) stained layers 2-10mm thick from 6-7.5' bgs.  No unusual odors.	0.1			
						SP		
	OC-SB-467-6/8-XXX		1620		0.1		YES	
	DUP/XMS/MSD			No unusuai odors.				
					0			
				7.5-10' Brown to light brown fine to medium sand with traces		an		
				of coarse sand and silt. Wet, slightly stratified with some reddish (iron) stained layers.	0	SP		
10				reddish (non) stamed tayers.	0.1			
10	Run #3 10 - 15	4.7	1625		0.1			
				10-12' Brown to olive brown fine to medium sand with traces of silt. Wet.	0.2	SP		
					0.4			
				12-15' Brown to olive brown gravel with some medium to coarse sand, and traces of fine sand and cobbles. Wet, some stratification.		GW		
					0.1			
					0	GP		
15				No unusual odors.		GP		1
Note		l			0			

**Notes** 

**SB-467 Boring:** 

1 of 3

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page

	MACT	EC			Boring: File No.:		SI	B-467	
Cont	ractor: Boart Longyear		Drilling N	Method: RotoSonic	Definitions:				
	rator: Greg Halliday			e ID/OD: 6" OD	S = Split Spoon San				
	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	U = Thin Wall Tube R = Rock Core Sam	nple			
	cked By: CTM			: Dave Chapman	V = Insitu Vane Sh q <sub>n</sub> = Unconfined Co	ompressive	Strength (	psf)	
	Start/Finish: 9/2/2009			Wt./ Fall: NA	woh = weight of 140 wor = weight of rod	0 lb. hamr	ner	. ,	
	ng Location: Area 3			vel: ~5-6' bgs based on soils	wc = Water Content oc = Organic Conte	t, percent			
	Elevation:		Water Le	vei. ~5-0 bgs based oil soils	oc = Organic Conte	nt, percen			
	Sample Informat	·ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	4.7	1640	15-19' Brown to olive brown coarse sand and gravel with some fine to medium sand and cobbles. Wet, stratified with some gravel layers and some sand layers.  No unusual odors.	1	0.1	GP GW/S	w	
20				19-20' Olive brown to olive medium to coarse sand with some fine sand and gravel, with traces of cobbles and silt. Wet.		0.1	GW/G	GM	
	Run #5 20 - 25	4.1	1655	20-21' Olive brown to dark brown medium to coarse sand. Wet.		0.1	GW/0	āM	
25				21-25' Olive to olive brown fine to coarse sand and gravel with cobbles and some silt. Wet, massive.  No unusual odors.		0.1			
25						0.5			ł

25-26' Brown to olive brown medium to coarse sand and

26-27.5' Olive brown to yellowish olive brown cobbles and

27.5-30' Yellowish olive brown to olive brown coarse sand and gravel with cobbles and a little fine to medium sand and a

trace of silt. Wet, becomes quite silty at bottom of interval.

gravel with a little fine sand and a trace of silt. Wet.

gravel with fine to coarse sand and a little silt. Wet.

No unusual odors.

30 Notes

Run #6 25 - 30

Jeny 7. Rawlffe

SP/SW

GW

GP

0.1 GW/GM

0.1

0.1

0.1

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

1705

3.7

Page 2 of 3

	MACT	EC		Project: Location: Client:	Wil Olir	lmington,		and Site			Boring: File No.:		SI	<b>8-467</b>	
Cont	ractor: Boart Longyear		Drilling N	lethod: Rotos							Definitions:				_
	ator: Greg Halliday			e ID/OD: 6" O							S = Split Spoon Sar U = Thin Wall Tub				
Logg	ed By: Jerry Rawcliffe		Casing II	D/OD: 4 7/8" (	OD inr	ner casi	ing/6" OD	outer c	asing		R = Rock Core San V = Insitu Vane Sh	nple			
Chec	ked By: CTM		Sampler:	Dave Chapm	man						q <sub>p</sub> = Unconfined Co woh = weight of 14	ompressive		psf)	
Date	Start/Finish: 9/2/2009			Wt./ Fall: NA							wor = weight of roo wc = Water Conten	ds			
	ng Location: Area 3		Water Le	vel: ~5-6' bgs	s base	ed on so	oils				oc = Organic Conte				
Ret.	Elevation:														
	Sample Informat	ion	T												
Depth	Sample No.	Recovery	Time		Sa	ample D	escriptio	n and Cl	lassifica	tion		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
30	Run #7 30 - 32	2.2	1725	30-31' Oliv	ve bro	wn to ol	live fine to	o coarse s	sand grav	vel with	l	0.4			
	OC-SB-467-30/32-XXX		1730	silt. Wet, n	massiv	e. No u	nusual od	lor.	_					YES	
			ШШ	31-32' Oliv cobbles (Pu	ve gray ulveriz	y to gray zed rock)	y silt, fine ).	to coars	e sand, g	gravel ar	nd	0.7		Ш	
				Estimate to											
				Bottom of b	boring	$g = 32' b_8$	gs.								
35															
40															
45				<u> </u>								L	L		
Note	<u></u>														_
											Jeny	72.	Ro	welf	
	ication lines represent approximate nder conditions stated. Fluctuations										Page	3 of 3			
											Boring:		SI	3-467	

Co	entractor: Board howe	yeru -	Drilling	Clien Method	1 Ruro Sonic	Boring: 5			
Lo Ch Da Bo	gged By: Teary Cawk ecked By: The te Start/Finish: 97109 ring Location: Acces 3 f. Elevation':	Jifk	Sample Hamme	D/OD: r: 044 r Wt./ F	D: 6°00 47/200 inver cusing/6'00 exter ocising e Cliptures all: NA 25-6'B65 basedons oils	S = Split Spoon Sample U = Thin Well Tube Sam R = Rook Core Sample V = Insitu Vone Shear Tr q, = Unconfined Compres wob = weight of 140 lb. h wor = weight of rods we = Whiter Content, perc oc = Organio Content, per	est ssive Strength nammer ent	(psf)	
Depth	Run#1 +582	Recovery	Time	Con	Sample Description and Classification	overele	Unified	Analytical Collected (Y/N)	Elevation
	3-10	5.5	1000		3-4' Brown fine to course sund and survey of couldes and silve (Connet sub		SW	Vec	
5	Bon#2 3-10	X02	lous	Rive Bos Well 5.5	5 Durkbrown to blink to durk reddish to media sund with thereses of sitt event. This blink a regent layer as sift way decomposed. Wet, some plant filers strate fried.  10 Brown to light brown fine to edicin send with troses of course.	20,2 20,2 11 20,2	sp	Yes	
0	00-50-468-8/10-		1010	V	u sual odors.	20.8 21.5	5P	Yes	
	Rum # 3 10-15	4.9		11- 12 Sun	Brown fine to weather sound with transcreams of slightly redulish brown free I with a little coare sound out traces and a co while - Wet	of zo.1	SP/ SW		
5				Some	5 Brown medium to cocres sent with growth time sent. West, some so well uperate \$ 13'BGS. No varsual	th 20.2 restilization. whose 20 20.2	sw sp		
ote									
atif	ication lines represent approximate son der conditions deted. Fluctuations of	ndaries betweer proundwater ma	n soil types, tr y occur due to	ansitions n o other taci	one of the series at the time measurements were made.	Page $\int \mathcal{S} \mathcal{S}$	3	· -	

Opera Logg Chec Date Borin	ractor: Board hower ator: John Gruslin ed By: Terry Rawa ked By: CAM Start/Finish: 912109 g Location: Area 3 Elevation:	whe	Sampler Hammer	PID/OD: 6000  Self-Spili Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample U = Thin Wall Tube Sample R = Rock Core Sample U = Thin Wall Tube Sample R = Rock Core Sample U = Thin Wall Tube Sa	mer	
Depth	Sample Informat	Recovery	Time	Sample Description and Classification	Unified Classification Analytical Collected (Y/N)	Elevation
15	Runt 3 15-20	3,9	1020	15-16,5 Brown Fireto course sand; Wet PM-0,2 Wappment structure, uniform grams 170. 4 16,5-18' Brown fine to course sund with 20,4 a little gravel Wet, mussin. 20,8	5P 595w	
20				18-20' Brown to olive brown fine to coarse 20.9 sand and gravel with a little cobbles and a little to a trace of 41H. No unusual 20.2 odors. =0.2	GW	a digina di mangani
	Runty 20-25	4.2	1030	20-22 Olive brown to olive to duholar him. PIRO 2 to coorse sunt and provide it a tomeofsile.  wet, massure.  20,1 22-25 Olive to darkolin gray hine to course sund country well with a little colliberantsile.	Cuffen	
عجر	0 45 2 >		1035	Wet, massive, novavsaulodors.	CW CM	
	Ru#5,25-30	2.2		2527.5 Olive brown first course \$1020 sound and grovel. Wet, massive slightly courser with depth. 23 27.5-50 Olive boxun to olive course sound and grovel with some five to median sound.	suf W	
30 Note	c			and a trace of colles. Wet, massing. There is a garbye/fertalyer/manne smell butit appears to be coming from up wind off site.		
, tota	2			and not from the 3011s.	Ü	
Stratifi and un	ication lines represent approximate the conditions stated. Fluctuations	cutitaries between of proudwater	reen soil types may occur du	ransitions may be gradual. Water level readings have been made at times of other actors than those present at the time measurements were made.  Boring:	1.6	ér.

Bori	e Start/Finish: 4 3 04 ng Location: 13 Elevation': Sample Informat	ion			III: NA  woh = weight of I  wor	ds nt, percent ent, percen		
Depth	Sample No.	Recovery	Time		Sample Description and Classification	Unified	Analytical Collected (Y/N)	
	JC-5B-468-51/33	4.2	1050	51	30-32 Olive to olive brown are sand and grand with some little to well. Nouversal odors -33 Olive to olive gray to gray fixe to 2 in sand with course sand and grand a some SI to with trails of colliss.	in Char	ion yos	
				33- Fu	34 Gory to duck gory cotables and gruch and	o Gu		
	L				trunded top of noch = 33'BGS tom of bong = 34'BGS.			
		•						
Note	es es							

			Project: Olin Chemical Superfund Site Location: Wilmington, M.A. Client: Olin  Ctor: Board Long year Drilling Method: Ron Sanic  Description: Description of the superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Olin Chemical Superfund Site Location: Wilmington, M.A.  Be project: Olin Chemical Superfund Site Location: Olin Chemical Superfu						
	Ope Log Che Date Bori	ged By: Teny Rawa cked By: The Start Finish: 9/5/09/1 ing Location: Area 2	30	Bore Ho Auger I Sampler Hammer	le ID/OD: 6000 NOD: 47/200 inner casing/600 orter casing  : Dans Chapsenan  Wt./ Fall: NA	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample Y = Insitu Vane Shear Test q, = Unconfused Compressiv woh = weight of 140 lb, har wer = weight of rods we = Water Content, percent	reStrength (	(psf)	
	Ref.	Elevation1:				oc = Organic Content, percen			
	Depth	Sample Information	Recovery	4 8 09 mi	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
9/8	09	10x-5/5-464-0/10	2.9	1715	0-0.2 disphala.  0.2-1.0 Brum fine to course muland a horistish. Dry (purposeur subject).  1.0-5 Brum to light brown fine to course with some grand and a lile of 57 br. Moist 5000 stra colored layers and a to the	gravel with 70.4		Yes	
	5			4/4/09	*2.1.5'065.	4.			
<b>પ</b> [4,	109	Run #2 5-10	3,6	6745	5-10 Brown to light brown fine to course sand and growelwith some and a truce of silt. Moist, massine	PIVEO 4 countes	suf Gu		
	_;	UC-513-4164-7/4-X	XK	0750		=1.2		A.	
	10	Run#3 10-15	0	7	Had No vecovery on 10-15' sample	-08			
	85 Note	26							
	IVOLE	3							
	Strati	fication lines represent approximal to nder conditions stated. Fluctuations	Ondaries between the programme of the pr	en soil types, nay occur due	and the same measurements were made,	Page $\int_{0}^{\infty} d\theta$ Boring: $5B$		9	

	MACI	EC			Boring: $\mathcal{S}\mathcal{B}$	.46	9	
				01111	File No.:			
Che Date Bori	tractor: Board home rator: Grey Hallide: ged By: Tem Reward cked By: CTM a Start/Finish: 1804 - ing Location: Aren 2 Elevation:	gyerax Aiffe alapa	Bore Ho Auger ID Sampler Hammer	e ID/OD: 6°00 POD: 47/800 inner casing/6°00 orter casing Days Chappenari Wt./ Fall: NA vel3: 29-10 065 Basel on soil descenting	Definitions: i = Split Spoon Sample J = Thin Wall Tube Sample Reck Core Sample y = Insit Wane Shear Test to = Unconfined Compressive to = weight of 140 lb. han yor = weight of rods we = Water Content, percen to = Organic Content, percen	ve Strength i uner	(psf)	
	Sample Informat	ion						
A Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	Mary 13-20	3,[	1000	but head to pull all roots from burchole the redrilled to 200	010-211	SP		
ð				Brown Rue tomeding sent groding to be medicin to course send with a little fine so and trues of grand. Wet.	oun and 20:5 =1.1 =1.2	SP		
	Run # 5 20.25	3.4	1020	Brown to light brown median to course surd with a little gravel and ornes of firstend and ornes of firstend small coststes. West, massive.	PHN 20.3	SD/ /Six		
25	Runtle 25-30	3.1	1035	25-29 higher brown medium to course	50.1	=24		
				sand culgrowel with a little five simel 29-30 Brown to olive to light olive group F to coaise such and grand with some coyles	P10=0.3  ne = 05  samp	50/5 i	ر	
20	UC-56-461-28/3	18 -XXX	lono	a trace of silt Wet, mussing	*	GW	Yes	
Note							, -	
Strati and u	fication lines represent approximate of their conditions stated Fluctuations Herry Court	puridaties between single puridates in	en soil types, I nay occur due		oring: $SB$		109	

	MACT	EC	×	Project: Olin Chemical Superfund Site Location: Wilmington, Mt. Client: Olin	Boring: 56	}	469	
Log Che Date Bori	ged By Ten   Cawc cked By: a Start/Finish: 989 - 9 Elevation: Sample Informati	1.14e 9/9/09	Bore Ho Auger I Sampler Hammer	Method: Ruto Sanic le ID/OD: 6000 MOD: 47/200 inner casine/600 over casing Days Chappy and Wt./ Fall: NA vel3: 29-10-165 Basedon soil observations	Definitions: S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample Y = Instit Veno Shear Test q, = Unconfined Compressi woh = weight of 140 lb. har wor = weight of rods we = Water Content, percen oc = Organic Content, percen	ve Strength numer	(psl)	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
30	RDW & 7 30-35	4.3	650	30-32 Crown to gline brown median to cocore soul with a little grand and for (Possible Alvain).  No vive soul others.  32-33 Olive to olive gray five to median some coare soul, grand, and cobbles as trace of sit. Wet  33-35 high yellowich brown to olive fine to soul and grand with a little cobbles and	sund with Ma 2017 Course 204	av		
35	Run# 8 35-38	3.8	1130	Griere gryto vive fice to covoire sens gradorimel with some cololos and to ot sitt. Wet Paint, sweet odor.	1 PID= 55 2005 = 39 = 64	Cw Ki	ru N	
43	06-56-469-36/37	ask	1145	Encurrenced very hard unesternlest 23 Estimate top of rock 37'665 Bottomy of boring = 38'665	7'865		Yes	
Y5 Note	es							
Stratin	fication lines represent approximate bo	underdes betwee	en soil types, t	ransitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page ? 』)			
	Jeny Kavil				Sage 3 of Boring: 5B	-4	69	

. . .

	Alla			Project: Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location: Wilmington, MA	Boring:		SF	3-469	
				Client: Olin	File No.:				
				6107090016-09					
	ractor: Boart Longyear			Method: RotoSonic	<b>Definitions:</b> S = Split Spoon Sar	nala			
	rator: Greg Halliday		+	e ID/OD: 6" OD	U = Thin Wall Tube R = Rock Core San	e Sample			
	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	V = Insitu Vane Sh	ear Test	C4		
	cked By: CTM	/00		: Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 14 wor = weight of roo	0 lb. hamn		(psi)	
	Start/Finish: 9/8/09 - 9/9	/09		Wt./ Fall: NA	wc = Water Conten	t, percent			
	ng Location: Area 2 Elevation:		water Le	evel: ~9-10' bgs based on soil observations	oc = Organic Conte	nt, percent			
	Sample Information	tion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5 (9/8/09)	2.9	1710	0-0.2' Asphalt.					
	OC-SB-469-0/1.0-XXX		1715	-		0.9		YES	
				0.2-1' Brown fine to coarse sand and gravel with a trace of silt. Dry (pavement sub grade).	of	1.0			
				1-5' Brown to light brown fine to coarse sand with some gravel and a few cobbles and traces of silt. Moist, some		0.8	SW		
5				stratification with different colored layers and a cobble lay at 2-2.5'bgs.	er	0.7			
	Run #2 5 - 10 (9/9/09)	4.9	745			0.4			
				5-10' Brown to light brown fine to coarse sand and gravel		2.0	SW/G	l w l	
	OC-SB-469-7/9-XXX		750	with some cobbles and a trace of silt. Moist, massive.		1.2		YES	
						0.8			

No recovery on 10 - 15' bgs sample.

**Notes** 

Run #3 10 - 15

0.0

Jeny 7. Rawliffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 3

	<b>MAC</b>	ГЕС		Project: Olin Chemical Superfund Site Location: Wilmington, MA Client: Olin	Boring: File No.:		SI	3-469	
			1	6107090016-09					
	tractor: Boart Longyear	r		Method: RotoSonic	<b>Definitions:</b> S = Split Spoon Sa				
	rator: Greg Halliday		_	le ID/OD: 6" OD	U = Thin Wall Tub R = Rock Core Sar	e Sample			
	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	V = Insitu Vane SI $q_p = Unconfined C$	hear Test	a Strangth	(nef)	
	cked By: CTM	10.100		: Dave Chapman	woh = weight of 14	40 lb. hamr	mer	(psi)	
	Start/Finish: 9/8/09 - 9/	/9/09		Wt./ Fall: NA	wor = weight of ro wc = Water Conter	nt, percent			
	ng Location: Area 2 Elevation:		water Le	evel: ~9-10' bgs based on soil observations	oc = Organic Conte	ent, percen	t		
Kei.	1			T					
	Sample Inform	ation				ı		1	Т
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	3.1	1000						
				Had problems with casing - inner barrel jammed in outer barrel. Managed to get casing unstuck but had to pull all tools from borehole and then redrill.		0.4	SP		
				15-20' Brown fine to medium sand grading to brown medium to coarse sand with a little fine sand and traces of		0.8			
				gravel. Wet.		1.1	SP		
20						1.2			
	Run #5 20 - 25	3.9	1020			0.3			
				20-25' Brown to light brown medium to coarse sand with		0.1	SP/SV	I V 	
				little gravel and traces of fine sand and small cobbles. Wer massive.	,	0			
						0			
25						0.1			
	Run #6 25 - 30	3.1	1035	25-29' Light brown medium to coarse sand and gravel with	ıa	0.3	SP/SV	 v 	
				little fine sand .		0.5			

29-30' Brown to olive to light olive gray fine to coarse sand and gravel with some cobbles and a trace of silt. Wet,

30 Notes

OC-SB-469-28/30-XXX

Jerry 72. Rawliffe

YES

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

massive.

1040

Page 2 of 3

	Alla-			Project: Olin Chemical Superfund Site					
	<b>MACT</b>	EC		Location: Wilmington, MA	Boring:		SI	3-469	
				Client: Olin	File No.:				
				6107090016-09					
Con	tractor: Boart Longyear		Drilling N	lethod: RotoSonic	Definitions:				
	rator: Greg Halliday		1	e ID/OD: 6" OD	S = Split Spoon Sa				
	ged By: Jerry Rawcliffe		1	D/OD: 4 7/8" OD inner casing/6" OD outer casing	U = Thin Wall Tub R = Rock Core Sar	nple			
	cked By: CTM			Dave Chapman	V = Insitu Vane SI $q_p = Unconfined C$	ompressive		(psf)	
_	Start/Finish: 9/8/09 - 9/9	0/09		Wt./ Fall: NA	woh = weight of 14 wor = weight of ro	ds	ner		
	ng Location: Area 2			vel: ~9-10' bgs based on soil observations	wc = Water Conter oc = Organic Conte		t		
	Elevation:		1	•	1				
	Sample Informa	tion							
	'				1		Ē		
						=	Unified Classification		_ ا
_		Recovery		Sample Description and Classification		PID (ppm)	d Eic	Analytical Collected (Y/N)	Elevation
Depth		9	Time			3	ifie	g ag (	, sa
	Sample No.	Re	Ĕ			Ы	5 ö	₹85	Ĕ
30	Run #7 30 - 32	4.3	1050	30-32' Brown to olive brown medium to coarse sand with	ı a				
				little gravel and fine sand (Possible flow in).		0.5			
				No unusual odor.					
				20 221 01: 4 1: 5 4		0.3	GW		
				32-33' Olive to olive gray fine to medium sand with some coarse sand, gravel, and cobbles, and a trace of silt. Wet.	<b>;</b>				
				coarse sand, graver, and coopies, and a trace of sint. Wet.		0.7			
				33-35' Light yellowish brown to olive fine to coarse sand	and				
				gravel with a little cobbles and a little to a trace of silt. We		0.4			
				Becomes hard at 32'			GW/0	GM	
35						0.1			
	Run #8 35 - 38	2.8	1130	35-38' Olive gray to olive fine to coarse sand and gravel w	ith	55			
				some cobbles and traces of silt. Wet.		39	GW/0	GM	
				Faint sweet odor.					
	OC-SB-469-36/37-XXX		1145			64		YES	
		ш	ППП	Encountered very hard material at ~37' bgs.		Ш	ПП	Ш	ПΠ
				Estimate top of rock = $37'$ bgs		140			• • •
				Bottom of boring = 38' bgs.					
				Bottom of boring = 50 bgs.					
40									
									1
		1							
45									
Not			II.						
					Jeny	72.	Ra	wbff	1
				s, transitions may be gradual. Water level readings have been made at times let to other factors than those present at the time measurements were made.	Page	3 of 3	3		

**SB-469** 

Boring:

	MACT			Project: Olin Chemical Superfund Site Location: Wilmington; MA. Client:	Boring: <i>51</i> 6 File No.:	3-4	70		
Ope Logg Ched Date Bori	ractor: Board homerator: John (over ged By: Teny Raw) cked By: Start/Finish: 9/4/1  g Location: Area 2  Elevation':  Sample Informa	High Hele	Bore Hol Auger ID Sampler: Hammer	e ID/OD: 6"00 100: 47/800 inner casing/6"00 orter oasing Dave Chief went Wt./ Fall: NA vel3: ~ 11.5' Based on Soils.	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q = Unconfined Compressive Strength (psf) woh = weight of 140 lb. harmner wor = weight of rods we = Water Content, percent oe = Organic Content, percert				
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
	UL-88-470 - 0/1.		1000	Coverate 0-0.8'  6.8-1.8 Brown grand visto Fixe to course = 500 grade).  1.8-400 Dabbrount & brown fixe to med  with course sud and grandwith to may	ungent	GW SW	Yes		
5	Runt 2 5-10	4,3	1005	cobbles and site. Some some francisco (1.645? 4-5'hilos brown Rouge ocoases and with some of and colosles. By.	). 20.4 some 20.3	Scu			
			6	10-107 Brown growel with Aretocoaresul Bir-9.5 Brown or slightly dash brown Ricetocoare configural brown Picetocoare sul only of with sile	vel 21.2	SW			
10	00.60.470-7/9: Ruf 3 10-15	4,0	1026	the -99 Brown to slightly reduced word, mass of 120 Penglish howen to gray fixet v cours and mularly some str. Dy.	e sul 20.3	SW	Yes		
	7.	110	/070	10-11.5 Brown to light brown fretocous, sunt and grand with traces of cubilisard Dry, massive.  11.5-15 Coo Brown course suntant	sil. 20.1	Sw/Gu	,		
15				with some mechansantant a little fine santourl cushes, Wet.	20 20.1	/su			
Note		Oreads	iyar	vursul oclors detected in this boy	7				
Stratif and A	ication lines represent approximate to der conditions stated. Fluctuations	oundaries betw of phyhdwater	een soil types, t may occur due	The state of the s	age 1 8	4-			

.

	MACT	TEC		Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client: Olin.	Boring: St	Boring: <i>56-</i> 470 File No.:				
Che Date Bori	practor: Board hower ator: The Grand ged By: Teny Caw cked By: Teny Caw cked By: Teny Caw cked By: Teny 19 estart/Finish: 9/4/19 ing Location: Aren 3 Elevation':	cliffe	Bore Ho Auger II Sampler Hammer	Method: Robo Sonic le 1D/DD: 6000  BOD: 47/800 inner cusing/6000 ortes casing  Chepman Wil Fall: NA  evel3: 211.51 Based on soils	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressive Strength (psf) woh = weight of 140 lb. harmer wor = weight of rods we = Water Content, percent oe = Organic Content, percent					
Depth	Sample Informa	Recovery	<b>⊗</b> <u>∎</u>	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
15	Run 184 15-20	510	1035	15-18,5' Brown to light brown coarse sand with some grand and a little me and with some grand and a little me and withdes and tree of time sour Wet, massive but more grand withde	queci,	SW		w .		
20	Runt 20-25	3,9	1040	18.5-20 Very light brown to light gree brown fine townshin such Wet street appearance. One studyly raddich brown layer at a 19.5' Begges stylly coaser gran below stand layer.	strived 20	SP				
	1000,113, 20, 23	3.7	(A)	20-23 hight brown to beinglight brom of light grow ich brown the someding sour slight grown the someding sour slighty and consergence 22 20.5 Very light brown to lybograyish brown sour with a trace of 5th. Wet. Bottom.	stintenel	50				
<b>H</b> 5	Runto 25-50	4,5	1050	23.5-24 higher brown medium to fine su a trave of course sunt olony some layer wet, stratified.	dw.th <sup>20.1</sup>	sp				
				25-27.5 Brown to reddish brown to light brown medium to course send we broves of greened and fine soul. Wet w Some reddish brown struck luyers (25,5- 27-27.3').		5P				
30				27.5-30 Very light brown to light grays fineto nedin such Wet, stratched.	6 brown 20.1 20.2 20.6	SP				
Note	S						:			
Stratif	ication lines represent approximate be der conditions stafed. Fluctuations	oundaries between groundwater r	en soil types, t	The state of the s	Page $2a$	4				

	de de co		Project: Olin Chemical Superfund Site				
	MACTEO	3	Location: Wilmington, MA.	Boring: 58	-4	70	
				File No.:			
Con	tractor: Board hong yes	ou Drilling	Method: Roto Sanic	Definition			
Ope	rator: John Graglia	Bore Ho	le ID/OD: 600	Definitions: S = Split Spoon Sample			
Log	ged By. Jeny Rawcliff	Augerie	SIOD: 47/800 inner casing/600 over oasing	U ≈ Thin Wall Tube Sampl R ≈ Rock Core Sample	e,		
Che	cked By: cTM		: Dave Chipary	V = Insitu Vane Shear Test			
Date	Start/Finish: 4/4/09	Hammer	Wt./ Fall: A/A	q, = Unconfined Compress woh = weight of 140 lb, has	iveStrength (	(pst)	
	ng Location: Areu 2	Water Le	evel3: 211,51865 basedons vils	wor weight of rods			
Ref.	Elevation1:			we = Water Content, percer oe = Organic Content, percer			
	Sample Information						
					2		
		^			Unified Classification	_	
ے ا		·	Sample Description and Classification		Fig.	ica	e o
Depth	Sample No.	Time			fiec	le c	'ati
اف ا	Sample No.		31.5 (05)		Unified	Analytical Collected (Y/N)	Elevation
30	Run #730-35 3.	5 1105	30-32 Very light brown to light gray. fine to median send. Wet,	ish drowy	50	100	ш
			fine to medium sent. Wet	_ PID = 0.3	32		
				@ "" " " " " " " " " " " " " " " " " "			
			31.5-35 Brown to While brown to 6	mo olme			
	UC-SB-470-31/31-Xx	1120	estables and a lite sit. Wes, in	A grane	GW		
			estables and a little site lated	corp a	100	41/.	
			No unusual odora detected.		3227	Yes	
			No unusual odor deterted,	PID 0.1			
					1 1		
35	Roat 8 35-41 2.	8 1120			1 1		
	Run H8 35-41 3.8			0.4	0.44		_
	33 7 31	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	35-37.5 Brown to olmebrown to	dark 10000,2	GW		
1		<del></del>	with som and colobles. Wet Massay	1	644	<b>(20)</b>	
1			with soft and colatelas ild meson	zo I			
			Toolings, well, masand		1.		
-			37.5-38.5 higher offine gory to light	gray		25.00	
			cobbles and rock tour	20			
			75,5-40" hack view correct and	colobiles			
			75,5-40'. Arholichrun granland with fine to coare sand and sitt		1 1		
				z 0.			
40			40-41 Bedvorh - but no recony				
			Betimbed top of roch = 375 BG	0.1			
			DELINES AND 24-1 2501.2 12 12 12	>			
						1	
			41 Bottom of boring		1		
			·				
	-						
		-					
							- 1
45						- 1	1
Note	S						
							- 1
						•	- 1
							- 1
			7				
							ı
Stratif	ication lines represent approximate boundarie	s between soil types. I	ransitions may be gradual. Water level readings have been made at times	0. 2	1 -		
and u	nder conditions stated. Fluctuations of ground	water may occur due	to other factors than those present at the time measurements were made.	rage &	K 3		
	() eus Kewils	Y N		Boring: $SB$		- 3	- 1
37,5	-410	U		Boring: <i>SB</i>	-47	70	



6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.: **SB-470** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear **Definitions:** Operator: John Graglia Bore Hole ID/OD: 6" OD Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 9/4/2009 Hammer Wt./ Fall: NA **Boring Location: Area 2** Water Level: ~11.5' bgs based on soils

S = Split Spoon Sample
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test **q**<sub>p</sub> = Unconfined Compressive Strength (psf) **woh** = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

Ref. Elevation:

	Sample Information	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.0	1000	0-0.8' Concrete.				
				0.8-1.8' Brown gravel with fine to coarse sand (concrete sub	0.1	GW		
	OC-SB-470-0/1.0-XXX		1015	grade).			YES	
				1.8-4' Dark brown to brown fine to medium sand with	0.2	SW		
				coarse sand and gravel with traces of cobbles and silt. Some				
				stratification (lifts?).	0.4			
				4-5' Light brown fine to coarse sand with some gravel and	0.3	SW		
5				cobbles. Dry.				
	Run #2 5 - 10	4.3	1005	5-5.7' Brown gravel with fine to coarse sand.				
				5.7-6.5' Brown to slightly dark brown fine to coarse sand and	1.3	CM		
				gravel.	1.2	SW		
				6.5-6.9' Light gray fine to coarse sand and gravel with silt.	1.2			
				6.9-9' Brown to slightly reddish brown fine to coarse sand and	0.5		YES	
				gravel. Moist, massive.				
	OC-SB-470-7/9-XXX		1020		0.3	SW		
				9-10' Very light brown to gray fine to coarse sand and gravel with some silt. Dry.				
10			4000	with some sitt. Dry.	1.2			
	Run #3 10 - 15	4.0	1020	10.11.51 Documents light houses from the course of the latest state of the latest states and the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states as the latest states are states are states as the latest states are states are states are states are states are states are states are states are states are states are states are states are states as the latest states are states a	0.2			
		1	<del>                                     </del>	10-11.5' Brown to light brown fine to coarse sand and gravel with traces of cobbles and silt. Dry, massive.	0.2	SW/G	l W	
					0.1			
				11.5-15' Brown coarse sand and gravel with some medium		GW/S	SW	
				11.5-15' Brown coarse sand and gravel with some medium sand and a little fine sand and cobbles. Wet.	0			
					0.1			
15					0.1			

Notes

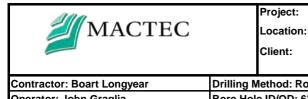
No elevated PID readings or unusual odors detected in this boring.

**Page** 1 of 3

**SB-470 Boring:** 

Jeny 72. Rawliffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.



Olin Chemical Superfund Site Wilmington, MA

6107090016-09

Olin

Boring: File No.: **SB-470** 

**Drilling Method: RotoSonic Definitions:** Operator: John Graglia Bore Hole ID/OD: 6" OD Logged By: Jerry Rawcliffe Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Checked By: CTM Sampler: Dave Chapman Date Start/Finish: 9/4/2009 Hammer Wt./ Fall: NA **Boring Location: Area 2** Water Level: ~11.5' bgs based on soils

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of rods
wc = Water Content, percent
oc = Organic Content, percent

Ref. Elevation:

	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #4 15 - 20	5.0	1030	15-18.5' Brown to light brown coarse sand with some gravel and a little medium sand and cobbles and traces of fine sand.  Wet, massive but more gravel with depth.	0.1	SW		
					0			
				18.5-20' Very light brown to light grayish brown fine to medium sand. Wet, stratified appearance. One slightly reddish brown stained layer at ~ 19.5' bgs. Becomes slightly	0			
				coarser grained below stained layer.	0	SP		
20					0.1			
	Run #5 20 - 25	3.9	1040	20-22' Light brown to very light brown to light grayish brown fine to medium sand. Wet, slightly stratified with finer and coarser grained layers.	0.2	SP		
				22-23.5' Very light brown to light grayish brown fine sand with a trace of silt. Wet. Bottom of interval is stained reddish brown.	0.1			
					0.1			
25				23.5-25' Light brown medium to fine sand with a trace of coarse sand along some layers. Wet, stratified.	0.1	SP		
	Run #6 25 - 30	4.5	1050		0.2			
				25-27.5' Brown to reddish brown to light brown medium to coarse sand with traces of gravel and fine sand. Wet with some reddish brown stained layers (25.5-26' and 27-27.3').	0	SP		
				some readish brown stanicu tayers (23.3-20 and 27-27.3).	0.4			
				27.5-30' Very light brown to light grayish brown fine to medium sand. Wet, stratified.	0.1	SP		
					0.2			
30					0.6			

**Notes** 

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 2 of 3

**Boring:** 

	Maa			Project: Olin Chemical Superfund Si	te					
	<b>MACT</b>	ΈC		Location: Wilmington, MA		Boring:		SF	3-470	
				Client: Olin		File No.:		<b>-</b>		
				6107090016-09		i iie ivo				
Cont	tractor: Boart Longyear		Drilling N	ethod: RotoSonic		Definitions:				_
	rator: John Graglia			ID/OD: 6" OD		S = Split Spoon Samp				
_	ged By: Jerry Rawcliffe			OD: 4 7/8" OD inner casing/6" OD oute	er casing	U = Thin Wall Tube R = Rock Core Samp	le			
	cked By: CTM			Dave Chapman	or one mg	V = Insitu Vane She $q_p = Unconfined Cor$	npressive		(psf)	
	Start/Finish: 9/4/2009			Vt./ Fall: NA		woh = weight of 140 wor = weight of rods		ner		
Bori	ng Location: Area 2		Water Le	el: ~11.5' bgs based on soils		wc = Water Content, oc = Organic Content				
	Elevation:		-							
	Sample Informat	ion								
Depth	Sample No.	Recovery	Time	Sample Description and	d Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #7 30 - 35	3.5	1105	30-31.5' Very light brown to light gray medium sand. Wet.	ish brown fine to			SP		
			<del> </del>				0.3			
	OC-SB-470-31/33-XXX		1120				0.3		YES	
	OC-3B-470-31/33-AAA		1120	31.5-35' Brown to olive brown to olive				GW/0	1	
				and gravel with some cobbles and a little	le silt. Wet, massive.			0 117	]	
							0.1			
				No unusual odors detected.						
35										
	Run #8 35 - 41	3.8	1120	35-37.5' Brown to olive brown to dark	olive brown fine to		0.2			
				coarse sand and gravel with silt and cob				GM		
				C	,		0.1			
							0			
			ШШ	37.5-38.5' Light gray cobbles and rock	flour.					
							0.1			
				38.5-40' Dark olive brown gravel and c coarse sand and silt.	obbles with fine to					
				40-41' Bedrock - but no recovery.			0.1			
40				Estimated top of rock = 37.5' bgs						
				Bottom of boring = 41' bgs.						
-										
45										
Note	es es	•	•			•		•	•	•
						Jeny 7	₹.	Rai	ubff	
				transitions may be gradual. Water level readings have be to other factors than those present at the time measuren	nents were made.	_	of 3			
						Boring:		SI	<b>B-470</b>	

	MACTE	C	Project: Olin Chemical Superfund Site  Location: Wilmington, M.  Client: Olin	Boring: 53-47/ File No.:						
Co	ntractor: Boart hong yes	Drilling N	lethod: Russanic	Definitions:						
	erator: Grey Hallaly	Bore Hol		S = Split Spoon Sample U = Thin Wall Tube Sample						
	ged By: Teny Rawcliff	Auger ID	100: 47/800 inner cusing/6000 over oasing	R = Rock Core Sample V = Insits Vone Short Test						
	ecked By: CTI	Sampler:	David Charleman q = Unconfined Compressive Strength (csf)							
	te Start/Finish: 977	Hammer								
	ring Location: Area 3	Water Le	re = Water Content, percent							
1.00				oc = Organic Content, perces						
	Sample Information									
Depth		Time	Sample Description and Classification	Unified Classi Analyt Collec (Y/N)						
1	Brutte 10-5 4.	2 1305	0-1.8 Brown sodach brown fine to in	11. PID=0.4						
	06-5B-4712/10-XXX	1315	grant and sitt. (boung tassor).) M to very moist, root hos	uist, zo,5 DW Yes						
			organic meternal and a little totore	s of						
	OC-50-471-3/5-XXX		organic meterned and a little totrese course surlend growel. West, (Former 3-5 Brown fine tomerdien sand mit West, some journ strangued reduction oracy	sump) = 2,2 halith 5, H. ke lugger = 0.4 5p yes						
5			No insent alors.	, , , , ,						
	Run #2 5-10 4.		5-9 Brown Fine to medium sand wi transcoffit wet, mascur becomes she courses with depoli.	20.2 SP						
10			9-10 Brown to helit brown A media sculwith a littleto a truce sund and grand. Wet Novin	SP						
	Run#310-17 3.5		10-11.5 Brown fine to coase sign with some grown, withles and a little to a silt. Wet , massile 11.5-15 Olive brown to dive to olive five to coarse send and ground with	gray 20.1 See						
		- 1	sittaulcolobles wet, myssie.							
			on a superior	70 GM						
15										
Strati and u	fication lines represent/goodwinate boundarion	between soil types, tr	nsitions may be gradual. Water level readings have been made at times other factors than those present at the time measurements were made.	Page / 0 ← 3						
	Jenny Kauseff	//		Boring: 58-47/						

1	199-110			Project: Olin Chemical Superfund Site				
	MACT	EC		Location: Wilmington, MA. Boring: 5	3-4	7/		
1				Client: Olin File No.:				
				Olin				
Con	stractor: Boart how	a yeras	Drilling I	lethod: Roto Sonic Definitions:				
	erator: Greg Hall de			e ID/OD: 6 D S = Split Space Sample U = Thin Wall Tube Sample	3	*		
	ged By: Terry Raw	chite	Auger ID	OD: 47/800 inner cusing/6'00 over ousing Person von Island Van Steer Tes				
	e Start/Finish: 9 2 09	-· · · · · · · · · · · · · · · · · · ·		Our Chair Van Shear Tea y = Unconfined Compress Wt/ Fall: N/A  Unconfined to 140 lb, bar	ive Strength (	(psi)		
	ing Location: Area 3			wor-weight of rods				
	Elevation':		1	we = Water Content, percone e = Organic Content, percone				
	Sample Informa	tion						
					5			
1		2	1		T T	ਰ ਜ਼	_	
٤		8		Sample Description and Classification	P E	ytic	ett.	
Depth	Sample No.	Recovery	Time		Unified Classification	Analytical Collected (Y/N)	Elevation	
15	Rutty 15-20	3.6	1335	15-17 Olive to durk of the fine tocourse PID= 0	130	405	Ш	
				sourt and it with gravel and trucks of wishly	Gui			
				wet, massue.	901	Y Y		
1				17-18 hich grun couples in Rue to course small				
_				wet, massue. 17-18 hishory course sun!	$\perp$			
1					6.04		-	
l				18-20 Gray to oline any fine to course sund and site with some grant and may 20,3	Ci/VI			
1		<b></b>		of whites. Wet massive	30			
30					3			
100	Runt 5 20-25	3.5	مستوع ، و کا	No ONO STANDONES	$\vdash$			
	Camps 20-23	312	1345	sundants it with some gravel and will	1 1	Y		
1				sundantsile with some frewel and will	GM			
				troves of colliles. Wet,				
				23 24 Olive to vive gry Aue to course sent with gravel and some sit and traces 20 of collishes. Wet, massive. Supple very soft and distributed differents to see structure 20				
				with gravel and some silt and traces 20	GHA			
1				of whiles, wet massue. Suple very soft	lin	1		
				and distributed dethren to to see structure =0	, 544	- 1		
25	0 67 - 4			tay.				
	Runto 6 05-30	510.	1355	25-28.5 Olive to pline brown fine to Pio = 0				
			<u> </u>	Course sund with some SIT+ and gravel and traces	GW/			
	00-58-471-26/28	1614	1430		(GiV)			
	DC 30 (7. 00)10	~	1,30	28.5-30 Gray to derk guy granel and ashibs		Yes	- 1	
				with some fine to coase sunt and soft. 20	-	-		
	_							
				-J.3				
[ ]								
30				2018				
Note	<u>s</u>							
				(%)			1	
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							- 8	
				,				
				(2)				
				W.				
Stratifi and aff	ication lines represent approximate be der conditions stated. Fluctuations of	oundafies/betwee of groundwater m	en soil types, to ay occur due t	nsitions may be gradual. Water level readings have been made at times other factors than those present at the time measurements were made.	3			
1	Jener (1 Cuss)	UKO						
0	V -000 CC	1/1//		Boring: 56-6	Boring: 56-47/			
		11						

	MACT	EC			Wt. Boring: 58-471							
	-			Client: Olin File No.:								
Con	tractor: Boart home rator: Gray Halphale	yerar	Drilling I	lethod: Ronsonic Definitions:								
Ope	rator: Crey Hallyda	100	Bore Ho	D/OD: 6 5 S Spiri Spoon Sample U = Thin Wall Tube Sample								
Log	ged By: Terry Raw	hitle	AugerID	OD: 47/800 inner cusing 16'00 over oasing R=Rock Core Sample V= Insite Vome Shear Te								
	cked By: CTM		Sampler	a = Upperalimed Compressive Strength (psf)								
	Start/Finish: 4/2/09		Hammer	Wt./ Fall: NA wob = weight of 140 lb. hs								
Ref	ng Location: Area 3 Elevation¹:		water Le	vel3: 23'665 based on 5 pits we = weight of reds we = Water Cordinate, perce ee = Organic Content, perc								
<u> </u>	Sample Informat	ilon	···									
ı	Sample mornia	I	Т		T =1							
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation					
۳	Runt 7 30-34	1.5	1430	20-21 0/10-12	1 / 1	40C	ш					
	1/M/14 / 20 3 4	113	1770	and white gray to gray hive to ware the list	cw/							
				30-31 Olice ones to one fine to course PID= 1,2 surland grandwith site Ab un scalodors. 31-34 Congralish one granded adoller = 0,5 with his tocourse surland site (rock thour).	/Gun							
				Estimate top of roch = 31'B65 (Top at weathered roch uney be as highers 28.5' Bottom of born = 34'B65								
1				Eta sturiela al meli una de achiela acci								
				O in wearest survey se as hughes 18.5		- 1						
				DO 100m OF DOMY = 39 863								
					1 1	- 1						
					1 1							
$\vdash$		-			-							
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Note	<u>s</u>											
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Stratifi	cation lines represent approximate bo	undayles betwe	en soil types, t	unsitions may be gradual. Water level readings have been made at times other factors than those present at the time measurements were made.	2		$\neg$					
and wi	der conditions stated. Fluctuations o	ghoundwater n	nay occur due t	nstitions may be gradual. Water level readings have been made at times other factors than those present at the time measurements were made.	_5							
Y	eny Cawel	10		Boring: 5B	Un	,						
0	0	U		Bonng: 30	7/1							

.



6107090016-09

Location: Wilmington, MA

Olin Client:

Boring: File No.:

**Definitions:** 

**SB-471** 

**Drilling Method: RotoSonic** Contractor: Boart Longyear Operator: Greg Halliday Bore Hole ID/OD: 6" OD

Casing ID/OD: 4 7/8" OD inner casing/6" OD outer casing Logged By: Jerry Rawcliffe

Checked By: CTM Sampler: Dave Chapman

Date Start/Finish: 9/2/2009 Hammer Wt./ Fall: NA

**Boring Location: Area 3** Water Level: ~3' bgs based on soils

Ref. Elevation:

Definitions.

S = Split Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>p</sub> = Unconfined Compressive Strength (psf)

wol = weight of 140 lb. hammer

wor = weight of 140 lb. name wor = weight of rods wc = Water Content, percent oc = Organic Content, percent

	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
	Run #1 0 - 5	4.2	1305	0-1.8' Brown to dark brown fine to medium sand with some				
				coarse sand and a little gravel and silt (loamy topsoil). Moist	0.9			
	OC-SB-471-0/1.0-XXX		1315	to very moist, root fibers.		SW	YES	
				1.8-3' Dark brown fine to medium sand with organic	0.5			
				material and a little to traces of coarse sand and gravel. Wet,				
				(former swamp).	0.2			
				3-5' Brown fine to medium sand with a little silt. Wet, some	0.2			
	OC-SB-471-3/5-XXX			"iron" stained reddish orange layers.	0.4	SP	YES	
5				No unusual odors.				
	Run #2 5 - 10	4.1	1310					
					0.1			
				5-9' Brown fine to medium sand with traces of silt. Wet, massive, becomes slightly coarser with depth.		SP		
		1		massive, becomes sugnity coarser with depth.	0.2			
				9-10' Brown to light brown fine to medium sand with a little	0			
				to a trace of coarse sand and gravel. Wet.		SP/SW	7	
				-	0.2			
10				No unusual odors.				
	Run #3 10 - 15	3.9	1320	10-11.5' Brown fine to coarse sand with some gravel,				
				cobbles, and a little to a trace of silt. Wet, massive.	0.3	an an	,	
					0.1	SP/SW	/ I	
		1			0.1			1
				11.5-15' Olive brown to olive to olive gray fine to coarse sand and gravel with some silt and cobbles. Wet, massive.	0			
					0	GM		
15		1			0.1			
Not		1			0.1	1		

Jeny 7. Rawlffe

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 3

**Boring:** 

	MAACT	TEC		Project: Olin Chemical Superfund Site			O.T.	D 454	
	<b>MACT</b>	EC			Boring:		SI	<b>B-471</b>	
				Client: Olin	File No.:				
				6107090016-09					
Cont	tractor: Boart Longyear			lethod: RotoSonic	<b>Definitions:</b>				
	rator: Greg Halliday		-	e ID/OD: 6" OD	S = Split Spoon San U = Thin Wall Tube	Sample			
	ged By: Jerry Rawcliffe			D/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sam V = Insitu Vane She	ear Test			
	cked By: CTM		<del></del>	Dave Chapman	q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer				
	Start/Finish: 9/2/2009			Wt./ Fall: NA	<pre>wor = weight of rod wc = Water Content</pre>	, percent			
	ng Location: Area 3 Elevation:		Water Le	vel: ~3' bgs based on soils	oc = Organic Conte	nt, percent	t		
ivei.									
	Sample Informat	ion	1				_		1
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation
15	Run #4 15 - 20	3.6	1335	15-17' Olive to dark olive fine to coarse sand and silt with gravel and traces of cobbles. Wet, massive.		0	GM		
				17-18' Light gray cobbles in fine to coarse sand and gravel		0.1			
				18-20' Gray to olive gray fine to coarse sand and silt with some gravel and traces of cobbles. Wet, massive.		0.3	GM		
20			1	No unusual odors.		0.1			
20	Run #5 20 - 25	3.5	1345			0			
				20-23' Gray to olive to olive gray fine to coarse sand and si with some gravel and traces of cobbles. Wet.	lt	0.1	GM		
			<u> </u>						

23-25' Olive to olive gray fine to coarse sand with gravel and

some silt and traces of cobbles. Wet, massive. Sample is very soft and disturbed - difficult to see any structure if any.

25-28.5' Olive to olive brown fine to coarse sand with some silt and gravel and traces of cobbles. Wet, massive.

28.5-30' Gray to dark gray gravel and cobbles with some fine

30 **Notes** 

Run #6 25 - 30

OC-SB-471-26/28-XXX

Jeny 7. Rawlffe

GM/GW

GM/GW

YES

0

0

0.2

0.3

0.8

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

to coarse sand and silt.

1355

1430

5.0

Page 2 of 3

**Boring:** 

	<b>MACT</b>	EC		Project: Olin Chemical Superfund Site  Location: Wilmington, MA	Boring: SB-471							
				Client: Olin	File No.:							
				6107090016-09								
Cont	ractor: Boart Longyear		Drilling N	lethod: RotoSonic	<b>Definitions:</b>							
	ator: Greg Halliday		Bore Hole	e ID/OD: 6" OD	S = Split Spoon San U = Thin Wall Tube	nple e Sample						
Logg	ed By: Jerry Rawcliffe		Casing ID	0/OD: 4 7/8" OD inner casing/6" OD outer casing	R = Rock Core Sam V = Insitu Vane Sh							
Chec	ked By: CTM			Dave Chapman	q <sub>p</sub> = Unconfined Co woh = weight of 14	ompressive S		osf)				
Date	Start/Finish: 9/2/2009 ng Location: Area 3			t./ Fall: NA  wor = weight of rods we = Water Content, percent								
Borir	ng Location: Area 3		Water Le	vel: ~3' bgs based on soils	oc = Organic Conte							
Ref.	Elevation:											
	Sample Informat	ion										
Depth	Sample No.	Recovery	Time	Sample Description and Classification		PID (ppm)	Unified Classification	Analytical Collected (Y/N)	Elevation			
	Run #7 30 - 34	1.5	1430	30-31' Olive gray to gray fine to coarse sand and gravel w	ith							
				silt.		1.2	GW/G	iM				
				No unusual odors.		0.5		ШШ				
				31-34' Gray to light gray gravel and cobbles with fine to coarse sand and silt (rock flour).								
				Estimate top of rock = 31' bgs.  (Top of weathered rock may be as high as 28.5' bgs.)								
35				Bottom of boring = 34' bgs.								
40												
45												
45 Note	25								<u> </u>			
11016	Jeny 7. Rawlffg											
				, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.		3 of 3						
					Boring:		SE	<b>3-471</b>				

	MACTEC			Client: Oliv						
Log Che Date Bori	tractor: Board how rator: Tolunbrade ged By: Tem Raw cked By: The e Start/Finish: 9 1446 ing Location: Area 3 Elevation: Sample Informa	eliffe	Auger I Sampler Hammer	Method: Ruro Sonic le ID/OD: 600  ROD: 47/200 inner cusing/600 orter oasing  Well-Fall: NA  evel3: 7-81865 basedon soils	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q. = Unconfined Compressive Strength (psf) woh = weight of 140 lb. harmer wor = weight of rods we = Water Content, percent se = Organic Content, percent					
© Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation		
	12.4810-5 UC-5B-473-U/IW-	412	0735	0-0.8 Durk brown five to medium surl and a little coarse surl gameliands it. (Tops o Moxt, musne, gruss and root fivers.  0-8-5 Brown to durk brown five toca with some grand and a little to a true of sind small curbles. Moist, undergraf gran sn Appears to las Atl with some structuration (I.f. K.11?) Massie otherwas.	20.2 20.2 4. 20 4. 20 4. 20	Chy	Yes			
5	Ruy #2 5-10	3.7	0745	5-5,5 Brown Rine to course sent with a little grant and site. Very motst. 5.5-7.0 Brown Rine towedown sortaits somes and traves of course sent and grant 50mms 7-7.5 Brown fine sand and site with some sent and site with some of course send 7.5-8 Crayish brown to black fice to medius with a graphic si wood fraprients, piece of bord	madey 20.2	GW GM SM				
Ю	0c-50-472-8/w- Run#3 10-15	4.1	0755	5-10 highthoroun to brown Fine to median s 10 - 13 hight brown fine to median sandown a trace of coasesand and site. Wet, son with some reddish (invi) string layers a 13-14 Brown to light reddish brown fine i medium sand with a true of coases	20. 4  The PIP=0.2  Athorner thick)	50	Yes			
15 Note	<u>s</u>			Wet. 14-15 Brown to olive brown fine toc cross with a little grewel and the other. I massin	20 scuf 20.1 let, 203	SP Gwf	щ			
Stratifi and u	ication lines represent approximate b	ougdaffes betwe	en soil types, t	ransitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	hory.	?				

Boring: 5B-472

MACT			Project: Olin Chemical Superfund Site Location: Wilmington, MA. Client: Olin	Boring: SB-472 File No.:			
Contractor: Board how Operator: July Complete Logged By: Terry Caw Checked By: The Date Start/Finish: 4 4 0 Boring Location: Aren 3 Ref. Elevation:	scliffe	Sampler:	Method: Run Sanic  Je ID/OD: 600  BOD: 47/800 inner casing/600 orter casing  The Chapman  Web Fall: NA  evel3: 7-8 B65 based on soils	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test g = Unconfined Compressiv woh = weight of 140 lb. har wor = weight of rods we = Water Content, percent oe = Organic Content, percent			
Sample Informa	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
15 Run 184 15-20	416	0805	15-19.5 Brown do residuel brown cours sunt with some medium swel and grown Wet some slight strate history with redd stringer layer at bottom of interval.	ul. dish zv	50	405	Ш
20			19.5-20 Brown to light brown fine to sound. Wet	mediin 20.1			
Run#5 20-25	4,2	08/5	20-21 Strong det reddish brown cour sunt with a title some mediusain grand wet. B	70 00	50		
35			21-25 Brown coare sent antomul. Eome medin send. Wet, uniform, som strutification.		16P		
Route 6 25-30	4.1	0830	with some medium said wet. 27,5-29 Brown to light bowers medius to 1 said with a little graveland cocrescul		50/6p		1
	5.2821. =		wet. 29-30 highs boun to light plins brown with fire to coccessed and sith with grand. Wet. Massie		6w/	4	

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of ground water gradual could be the factors than those present at the time measurements were made.

Page 2 of 3

Boring: 58-472

1	1111			Project: Olin Chemical Superfund Site				
ı	MACT	EC		Location: Wilmington, Mt. Boris	- 0	10	- 2	
1				Bound Mil Mil Mil Mil Man Jan Jan Boun	ng: <i>SB</i>	-4	72	
1	-			Client: File !				
1					10			
Com	matan O		D 1111 A	4 . 0 . 6				
0011	tractor: Board hone	yeran	Drilling it	Method: Roso Sanic Definit				
_	rator: John Gragli		Bore Hol		poon Sample			
Logg	ged By. Jeny Rawa	litte	Aligheib		Vall Tube Sample Core Sample			
Che	cked By: otm		Sampler	11/224/1/1/2014/04/04	Vane Shear Test			
	Start/Finish: 9 4/09		Hammer	the state of the s	fined Compressive	eStrength (	(psf)	
					ght of 140 lb. hamu	mer		
			Water Le		Content, percent			
Ret.	Elevation¹:			oc ≈ Organ	vic Content, percen	r		
	Sample Informat	ion						
			1			Unified Classification		
		>	1			at:	= -	
ے ا		ke k	1	Sample Description and Classification		<u>اي</u> و	E 22	9
ᆵ		8	9			S e	5 G Z	ati
Depth	Sample No.	Recovery	Time			Unified Classifie	Analytical Collected (Y/N)	Elevation
30	Run# 7 30-35	4.8	0845	20=23 3 -1		⊃.∪	405	<u> </u>
130	320m Hr / 30-35	7.8	10842	30-32 Olive brown to dive frosto couse sud and sit with some grand and colles. Wet, with rage of gransine masse	P10=0,2	GM		
			1	and sit with some grand and college what				
				will mye of greater masse	04			
	06-68-472-30/32	. 7.14	0850	32-32:5 Annua trally langua de alice mare	33.9		11	
	00 90-4/20 30/53	7000	0850	Byzatac array e cu la la la la la la la la la la la la la	, i		1/es	
				English and It is the country and	= 0.4	CUA		
1				Rice to coorse sond and git with cobblesant				
				73.5-35 higher gory covides and quelin rock fle	W 20.6			
			<del>                                     </del>		,			
1 :			1	Estimated top of rock = 33.5 BGS				
l i		!	1					1
1 -				Botom of borin = 35'BGS				
35				50 FOR 80 100 100 505				
12.5					]			
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Stratif	ication lines represent approximate b	Juhgaries betw	een soil types, t	ransitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	2.1	2		
- "	2 Pluctualidas	W A	may occur due	to other factors than those present at the time measurements were made.	30K	5		
	Low Kourdy	114			. ^			i
		1/		Borin	g: 5B	-4-	7 <b>2</b>	
0					_			

MACTEC	Project: Olin Chemical Superfund Site Location: Wilmington, MA.  Client: Olin	73				
Operator: Juson Frederichs Bor Logged By: Jenn Rawdiff Aug Checked By: Ehie Mandin San Date Start/Finish: 91809 Har	ing Method: Direct Push Hole ID/OD: 196-1242  er ID/OD: MA- pler: Dane Charginan mer Wt./ Fall: NA- er Level <sup>3</sup> : Af	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q, = Unconfined Compressive Strength (psf) woh = weight of 140 lb. harmer wor = weight of rods we = Water Content, percent oe = Organic Content, percerr				
very	Sample Description and Classification	Unified Classification	Analytical Collected (VIN) Elevation			
OC-53-473-0.6/113-XXX 07		dais a 1 SP	Yes			
5 0C-5B-473-4/6-XXX 091 51eeve #2 5-10 3.9 08	2-5 Brown five to medium sombuth of	execution of SP execution of S	Wer Yes			
10	9-10 Brown to datebrown fixetucoc sund with a little growel. Wet.	= 20.150/ SW				
Sleew#3 10-15 3,4 09	15 10-14 Brown cowse sunt and gravele media sand and a trove of fire sand Wet, some stratifiation with grand at a coverse gravied areas to fixe graved	PID=0 SO				
0C-513-473-13/15-XXX 093	Refusilat 15	= 0	Yes			
Stratification lines represent approximate boundaries between soil	Completed a Lud a Hungt fogel and and again encountered refusal Bottom of boring = 15'BGS  ypes, transitions may be gradual. Water level readings have been made at times in due to other factors than those present at the time measurements were made.	ne supple wolf at 215'B65.  Page 1 of 1	unl			

	MACT	EC		Location: Wilmington. Mass.  Client: Olin	Boring: S File No.:	B - 4 -	<b>}</b>		
Con	ntractor: Zebra erator: Tason Frederi	c Da	Drilling N	Method: Direct Msh	Definitions: S = Split Spoon Sample				
	gged By: Treder			e ID/OD: ————————————————————————————————————	U = Thin Wall Tube Sample				
	ecked By:		Sampler:		R = Rock Core Sample V = Insitu Vane Shear Test q <sub>s</sub> = Unconfined CompressiveStrength (psf)				
	te Start/Finish: 11-1 8 -			Wt./ Fall: WA	woh = weight of 140 fb. ham				
Bor	ring Location: < %	174	Water Le	vel <sup>3</sup> :	wor = weight of rods we = Water Content, percent				
Kei.	7	<del></del>	<del></del>		oc = Organic Content, percen	n'			
	Sample Informat	ion				-1			
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected	T/N)		
		2.613.		-0-0.5 : Mostly brown date	brewn	PIS			
$\perp \perp \perp$	00-58.474-0.0	/1.0-	12:45	ergonics, silty goil.		20			
		* for		brown derk brown, wo	send	1 1			
	@ 12:4	15	1	1.2-1.5: Red brown silty	sond				
-						60.	1		
				sand, uniform, moist					
1									
	Marie 3	3.415	12:60	0-0.7: Mostly ton- brew	n meel	1	+		
	DC-58-474-8			sand, some reddish brau		PiD			
	e 13:			0.7.3.4 : Masty ton med.		40.	'		
				sand, wer		60.	(		
_	·					60.	1		
١,		2.515	13:1	0.2.5. Mostly med-fi	we prov	PID PID	, [		
١ ١	OC-58-474-	19.9112	5-7	reduish brown sond f	3000	20.	1		
1	13115		-	2.3.2.5		20.	1		
						40.			
$\vdash$							+		
				End of bering: 12.1	= 1				
				<u> </u>					
				(refusal)					
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	MACTEC			Boring: ゟゟ File No.:	oring: SB - 475 le No.:			
	Contractor: Ze bra Operator: Jason Frederick Logged By: The Contract Operator Chap Checked By: CTM Date Start/Finish: 11-12-19 Boring Location: 52-435 Ref. Elevation:	Sampler:	e ID/OD: /OD: 1.75" TO MacroCore. Wt./ Fall: UA vel <sup>3</sup> :	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q_ = Unconfined CompressiveStrength (paf) wha = weight of 140 lb. harrurer war = weight of rods we = Water Content, percent o = "Organic Content, percent				
	Sample Information							
	Depth Samble No.	Time	Sample Description and Classification		Classification Analytical Collected (Y/N) Elevation			
o' 5'	MC-1 0-5 2.619 0C-58-475-0-011-0-	11:20	0-0.2: Mostly brown down organic soil, roots/grass 0.2.0.4: Brown-tan Fine-no.4-1.4: Brown-red brown med sord	ned same	PID 20.1 20.1			
3	3.215 DC-58-475-8-0/10- XXX / DUP @ 11:45	11:45	meist 1.5-2.3; Brown. ton med- sand, wet.	coorse	20.1 20.1 2136 57			
10'		+2:10 +2:15	2.3. 3.2: some as above, tan-gray, strong petrol oder	wetter.				
15'	4.815	12:10	sand, damp, uniform	ruraned	20·1 150 26 10·2			
20'	00-58.475-16(18-MS/M -XXX 2.0/5	12:29	,		2·1 5·6 30·2 co1			
			End of boring = 18'  Crefusal)	-				
	Notes							
			e to other factors than those present at the time measurements were made.	Page \ • • • • • • • • • • • • • • • • • •	3.475			

	MACTEC	Client: Olin File No					
	Contractor: Zebru Operator: Tason Frederick	Drilling Method: Orrect Well Definitions:  Bore Hole ID/OD:  Definitions:  S = Split Spoon Sat					
	Checked By: CTM  Date Start/Finish: 11-18-19	Sampler: W = Insitu Vene Si	nple tear Test ompressiveStrength (psf)				
	Boring Location: 58-436 Ref. Elevation!:	Water Level <sup>3</sup> :  we = weight of row we = Water Conten oe = Organio Conte	ds it, percent				
	Sample Information		5				
5	Recovery	Sample Description and Classification	Unified Classification Analytical Collected (Y/N)				
	MC-1 0-5 3.215.  DC.38-476-0011.0-1	some roots grass  organic silty so  organic silt	derk seil				
		med sond, moist  1.8.3.2: Mostly tan med-cool  sond, uniform, some red mi	rse				
	<b>№</b> 8.3/5	10:50 0-1:1: Mostly the Ton . brown					
, /		fine med sand, uniform, damp  1-1-2.6 ( Mostly brown, red bro  fine med sand, maist  2.5-3.3 : Mostly brown-tan med	620				
	3.315 OC-58-476-13/15-	a.7.3.3; Brewn. Ten med sond	0. Z 15.Z 3201				
5'		saturated strong perroleum	29				
		Refusal at 151					
	Notes	· · · · · · · · · · · · · · · · · · ·					
	Stratification lines represent approximate boundaries between and under conditions stated. Fluctuations of groundwater re		०६। ८८ - स३८				

ij.

MACTEC	Project: Olin Chemical Superfund Site Location: Wilmston. Mass. Client: Olin	Boring: 58-477 File No.:
Operator: Tason Frederick  Logged By: Frederick  Checked By: CM  Date Start/Finish: 11-18-10  Boring Location: 58-437  Ref. Elevation <sup>1</sup> :	Orilling Method: Direct Well Bore Hole ID/OD:  Auges ID/OD: 1,75" TO  Sampler: MacroCore.  Hammer Wt./ Fall: Well  Water Level <sup>3</sup> :	Definitions:  5 = Split Spoon Sampte  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q, = Unconfined Compressive Strength (psf)  weh = weight of 140 lb. hammer  wor = weight of rods  we = Water Content, percent  oe = Organic Content, percent
Sample information  the state of the state o	Sample Description and Classification	Unified Classification Analytical Collected (Y/N)
C 9.55	50nd. 1.1-2.2: Same as above, to	Fine soil Fine s
00 - 59 - 477 - 8.0/10 © 10:10	sand, maist, uniform.  2.0.2.7: Same as above, co reddish color.  2.7.3.5: Some as bubove, s	5.7 4130
	petroleum odor	
10 - 12 - 5   2 - 5	b:20 - 5: Mostly gray, fine.  5-7x petroleum odor  1.5 · 2.1: Same as obove, f  5.1+, strong odor  2.1 · 2.5: Cocase ton - brown	ine, some 60.2
	Refusal at 12.5	ning
Netec		
Notes		
Stratification lines represent approximate boundaries betwee and under conditions stated. Fluctuations of groundwater m	n soil types, transitions may be gradual. Water level readings have been made at times ny occur due to other factors than those present at the time measurements were made.	Page ( of 1

10'

	MACTEC    Project: Olin Chemical Superfund Site   Location: Uilmurghon. Mass.   Boring: 58-100   Client: Olin Chemical Superfund Site   Chemical Sup						478		
	ractor: Zebru		Drilling N	Method: Direct Push	Definitions:				
Oper				e ID/OD;	S = Split Spoon Sample U = Thin Wall Tube Sample				
_ogg	ed By: ST / Court in A	-10, angre	AugesID	10D: 1.75"TO	R = Rock Core Sample V = Insitu Vane Shear Test				
	ked By: Crm		Sampler	MacroCore.	q, = Unconfined Compressiv		psf)		
_	Start/Finish: 11-18-		Water Le	Wt./ Fall: VA	woh = weight of 140 lb. hammer wor = weight of rods				
	ng Location: 彡용 • 낙각 Elevation¹:	18	Ivvater Le	vel³: المراجعة	we = Water Content, percent oe = Organic Content, percent				
	Sample Informat	ion			oe - Organic Content, perce				
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)		
4	MC-1 0-5 3	2/5.0	9:05		prown		PID		
- V	Oc.58-478-00		4	organics. some grass   roots			40.1		
1	@ 9:10			gonics . bor - dork bor .	swe or-				
				o. 7. 3.2: Brown - red brown -	1041		20.1		
				Send, Uniform, Moist	-		40.1		
	5 -12	3.415	9:20	0 + 2.8 : Mostly brown - TON 1	wed		PID		
4	OC - 58 - 478 -	8.0/10		Sand, moist, uniform.			40.1		
Ī	@ 9:			2.2 - 3.4 : Mostly Same as al	pa - 4 .		ده.		
				domp , med - coarge			•		
ı		2.012.0		•			40.1		
	Me S		9:40	0-0-9: Mostly med-coarse	4and		PID	-	
Ī		COU	1111	ran, brown,	_		40.1		
1	06-58-478-	0112 -	75.36.3K	O.q. I.C: Med - Coorde brow	- • •		25		
Ť	e 9:4			sord bond of dork mare	rial fear	۳.,	-	·	
ı				1.0-1.2, me14+			137		
				1.6-2.0: Brown . ton med	- Coourse		6	3	
ı				sand. wer, uniform, st	פים פים				
- t				pervoleum odor	,				
ļ				Refusal at 12'			4 -		
								_	
				( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )					
Ļ									
L									
١.									
	" I								

	ged By: J. Rawclif		Sampler	S = Split Spoon S   U = Thin Wall Tu	S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insit Vane Shear Test q <sub>p</sub> = Unconfined Compressive Strength (psf)			
		0		Wt./ Fall: \(\sqrt{A}\) weh = weight of wer a weight of wer a weight of wer a weight of wer a weight of wer a weight of were a weight of were weight of were weight of were weight of were weight of were weight of were weight of were weight of were weight of				
	ng Location: ————— Elevation¹:		Inagret Fe	we = Water Control oc = Organic Con				
	Sample Information							
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification Analytical Collected (Y/N)			
_	MC-1 0-5	3,9/50	1520	0-0,2 sopult.	1301405			
			-	T MI TOWN	0.1			
				to coarse soul and ground tons	0.4			
		1	<del>                                     </del>	to coarse soul and groud tro	0,2			
_	PIDHS			0.8-1.6 Reddish brown medium sand in	il I			
	3-5 2.4			a true of fine sand and some of filers.	013			
				1.6-5.0 Brown five mediuntsand with a lit	ile oiy			
				Fire said unitories of course sendo Moist,				
	( <del>1111</del> ) # 10	2.3	1 8- 7	some stratification.				
	M 5-10	3.3/5.0	1525	5-5.6 Brown medin sand with thrusof	0.9			
	· · · · · · · · · · · · · · · · · · ·	1	<del> </del>	Fire saul and course sul. Verymoist.	,     1			
	PID175=1.3	1	1	5.6-66 Brown to redded brown gravela	시     시			
	8-10			media to coarse sand.	0.5			
				6.6-10 Olive brown to olive medius				
		<del>                                     </del>			t 0.1			
		+	ļ	west fine sudged sitt. (Suly till).	0.7			
			<u> </u>	06-51-479-8.0/10	1 1 1			
				33 171-9.0/10	^^^			
				Bottom of long = 10 (Refund).				
				150 om or way - 10 (repunt)				
	- <del> </del>			•				
		<del> </del>	<del> </del>					
	, , ,	<b>-</b>	-					

	Operator: Juson Frederick Bo			Method: Diviect Rish	Definitions:  S = Spiit Spoon Sample  U = Thin Woll Tube Sample			
	ged By: J. Rawcliff	<u>i</u>		/OD: 1.75" TO	R = Rock Core Sample V = Insitu Vane Shear Test			
	Start/Finish: LL LU	0	Sampler	MacroCore. Wt/Fall: U.S.	q <sub>p</sub> = Unconfined Compressiv web = weight of 140 lb. ham		sl)	
_	ng Location:		Water Le		wor = weight of rods we = Water Content, percent			
₹ef.	Elevation <sup>1</sup> :				ee = Organic Content, percer			
	Sample Informa	tion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	
	MC-1 0-5	3.4/5.0	1555	0-012 Asphilt		_	010	Г
				orandulhatrue seed se	ul		0,4	
				5.16-1,1 Datebrown to very	sand.	$\vdash$	1.3	L
				1.1-2.1 Reddish brown median Sand	huily		11.4	
	PIUHS = 71.6		ļ	a life his surland ones of course of moist.	Secret.		9.8	ĺ
	3 -5	-		2.1-5 Brown to light from media scul with	a libel Awa-c	- 1	26.5	
	MC-25-8	2,3/3,0	1605	5-6.7 Brown to light on	edun		34	
				6. surl. OC-SB-	1 medun		24	
				a true of fine sent and silt (Sudy till).	l a		9,5	
					,		21	L
				Bottomo From = 8' Reprocl.				
lote	25	L						L

	MACTEC				Project: Olin Chemical Superfund Site Location: Wilmington. Mass.  Client: Olin	Boring: S &				
	Operator: Tus on Frederick Bore I Logged By: T. Rawci Hu Checked By: CTm Samp Date Start/Finish: 11 7 10 Hamm			Bore Hol Auges ID Sampler:	10D: 1,75" ID MacroCore. Wt/Fall: NA	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q_= Unconfined Compressive woh = weight of 140 lb. harm wor = weight of rods we = Water Content, percent oe = Organic Content, percent	mer	(pal)		
		Sample Informa	tion							
	Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation	
O		MC-1 0~5	3.450	1320	enqual the same oc B 41	esculand		P(V) O 1.3		
5		PIDITS = 24 4-5			4.4-5.0 Brown or light for mech with a little coarse soul and truss Sand. Very moist, to wet hed a appearance.	yered		0.1 7.8 16.9		
3		MC-2 5-10	3.7/5.0	1405	5-5.7 Brown to light brown medicing a little course send and trees of the 5.7-6.6 Brown to olive brown medicin to and grand with a little the sent.	is are surf		52 66		
10					6.6-7.8 Brown course scul and grand a median Fack Wet. 6C-50-481-7.3/4 7.9-10 Olive to olive brown median to cours grandwith a little fine sand and silt. Ma runist to net. (Till like appression).	unty sour (ms/msp) (of xxx (1410) e soudand ssine, very	>	74 18 7.9		
					hefral at 10'B65					
	Note b	ent another con	suple e suple	Row r. L	internal helow commence slab. Man LAMB Buildy 1/ SB-480 SB-47		3 m	nl		
	Strati and u	ification lines represent approximate under conditions stated. Fluctuations	boundaries betwe	en soll types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / of Boring: 58	1	1		

ogg Chec Date	ractor: Zabru rator: Tason Fredorius ged By: J. Kuwc III sked By: CTM Start/Finish: III5/10 ng Location: Elevation!:	s e		e ID/OD:  ### U = Thin Wall TU  ### U = Thin Wall TU  ### U = Unconfined ( ### U = U = Unconfined ( ### U = U = U = U = U = U = U = U = U =	omple be Sample imple sihear Test CompressiveStrength 40 lb. hammer ods ent, percent	(psf)	
Depth	Sample Informati	on Recovery	Time	Sample Description and Classification	Unified Classification	Collected (Y/N)	Elevation
	rin 1+5= 1.7pp	\		0 2-1.0 Brown Greto course send adquel. 1.0-2.0 Darkbrown to redden brown medicins with a little face send strutbred near top. Moise	۲.	5.0 3.2	
				3.0-3.2 pour to light brown with some reduled structed layers near the bottom. Median our with some fine sunt and trues of course Moist, Faint stratified a measure.	Sund	3.3 3.0	
	WC-7 2-8	2.9/3.0 m	1150	5.5,4 Brown to light brown medium and with hills fine soul and a little to trous of co is seen 5.4-8.0 Brown to dark brown to olive cours Seen and growl with some medium send a	2	1.4 15:7 22.0 7:1	
				a lilkito irves of fine soul and 57th - both (7-8) contras 1.85 grad more sit Moist, massi Refused at 0.0 665	pus	5,0	
				14,110,22 20 0.0 6 6 5			
Not	tes.			1			
Str	atification lines represent approximate d under conditions stated. Fluctuation	boundaries bet s of groundwate	ween soil type or may occur d	es, transitions may be gradual. Water level readings have been made at times use to other factors than those present at the time measurements were made.	:5B-	482	

Oper Logg Chec Date Borir	ractor: Zebran rator: Tuson Frederic ped By: J. Rawch Fin ked By: Start/Finish: 11 15 10 ng Location: Elevation!	ihs	Sampler: Hammer	lethod: Direct Pish	Pefinitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vanc Shear Test Q = Unconfined Compressiv wah = weight of 140 lb. ham wer = weight of rods we = Weter Content, percent ee = Organic Content, percent	mer	psf)	
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical To Collected CO (Y/N)	Elevation
	0-5 MC-1 Backs 0-2:18-1	2.0/5.0	1005	Top c-0.4 6 mul represent a little su	ul.		0.5	
	Dag H3. V F IIII			o,4-0,8 Browner stight yellow brown frietoco ree sund and growel. Muis	t, mussing		16.4	
				with posselli aspult ryment	al gravel		3, 1	
				1.0-2.0 Drown fine to cooke sent with a grant. Moist masser	aliki			
	Bughts 5-7=2400p	3.8/5.0 m	1015	5-6.5 Brown to light reddish brown brown media to cocrescul with son surland a little ground. Moist to we massed			7	
				6.5-9 Brown to olive brown fine soul with a little site, course soul lay moist, massure, sweet organic od	and grade.		832 <b>3</b> 026	
┝	Mc-3 10-13'	2.8/3.0	1030	10-11. 3 Brown to dark brown fire to	coure		3.8	
	Buffs 10-12 = 81	1 ppvi		Soul and grand with a little SIT- Muss	stymussul own		420	
				silt Wet, mussive Refusal ut 13'065	ng s me		140	
Not	tes							

ogg hec ate	ractor: Zelavas rator: Tussin Fra ged By: Tussin Fra sked By: Time Start/Finish: 1115   Ing Location: Elevation!	n	Bore Hole Auger ID Sampler: Hammer Water Le	10D: 175 10 : Macro Wt/Fall:	S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressive Strength (psf) wash = weight of 140 lb. hammer were weight of rods we = Water Cantent, percent ac = Organic Content, percent				
Depth	Sample Infon	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)		
	PID HS = U:1	36/5.0	1047	0-02 Sturb asphilt Prymers. 0,2-1,2 Grown to durk brown Price to sundwith a little course send and gor Stratified.			0.2		
				1,2-3.6 Brun to light brown to s! reddish brown mediin sund with sund and a little course sund a of grand. Moist, some course stre	Morrison				
•	MC-2 5-7'	10/2.0	1130	5-5.7 hight brown to brown med with some fine sendand a little course 5.7-7.0 Brown to oling brown to gram course undand grand with rolling in vist, massing	Tyments.		3.2 55		
				Bottom of Borig = 7.0'865 Ref	usad				
				-					
Not	tes						110000		
٠									

		MACT	EC		Project: Olin Chemical Superfund Site  Location: Unington  Client: Olin	Boring: $SB$	-48	5	
	Oper Logg Chec Date Boris	ractor: Zelova rator: Jesan Frede ged By: J. Rowelff cked By: erm Start/Finish: [15]0 ng Location: Elevation':		Drilling N Bore Hol Auger ID Sampler: Hammer Water Le	e ID/OD: — 1-75 in ID  Macro Core Wt./ Fall:	Definitions:  S = Spit Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insits Vane Shear Test  q <sub>p</sub> = Unconfined Compressiv  wash = weight of 140 lb. ham  wer = weight of rock  wer = Water Content, percent  oe = Organic Content, percent	mer	ŋ	
	Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
0		MC-1 0 5 Simple time 1200 PID 115 0.7pp 0	3.4/5.0	1145	0.2 Dlack asphalt 0,2-0.6 Brown medintocorresultinth and and of the bound of the bound of the friends meding so 0.7-1.8 fedded brown frieto medin so true of coare sent. and a couple noots	ul with a	0/1-8	yes	
5		IMC-2 5-10	3,6/5,0	1152	1.8-3.4 higher brown medium soular little fine sunt and trones of courses some funt struth history with occation 5-6.1 higher brown medium soul with souland traces of course sound.	oud. Most Whin luyers		o	
		Supliture 1005 P101+5 4.0pp			1. The medic sund and torres of hime sun oc	201142 2. -53-485-6.0/ Laul	80-x	455 0.3	
O		MC-3 10-13	2.6/3.0	1201	gruel Moist, massus cleuse, tillighte with cliff fresund and silt.	n to coase		0.8	
		Suplisting 1210 PIVITS = 18,1pp	М		sand and ground with a little file	@Sandanl :B-485-11/13-		2.5 4.8 46 8.4	<b>5</b>
	No	tes			Voc	, svoc, VPI+,	eph		
	Str	atification lines represent approximat d under conditions stated. Fluctuation	e boundaries be as of groundwat	tween soil type er may occur d	rs, transitions may be gradual. Water level readings have been made at times us to other factors than those present at the time measurements were made.	Page / of Boring: 58	1	5	

Oper Logg Chec Date Borir	ractor: Zelova rator: Tuson Freden ged By: T. Ruwchfu ked By: CTM Start/Finish: 11/15/10 ng Location: Elevation <sup>1</sup> : Sample Informati	ich	Bore Hol Auger ID Sampler:	OD: 1.75-1D Re-Reck Core Sample  MacroCore  Wt./ Fall: WA  we weight of 140 lb. ham wer weight of rods  we = Water Content, percen	S = Split Spoon Sample U = Thin Wall Tube Sample R = Reck Core Sample V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined CompressiveStrength (psf) weh = weight of 140 lb. hammer			
Depth	Sample No.	Recovery	Тіяе	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)		
	0-5 PIO H5 = 0.2	3.7/5.0	1350	0 0.3 Darkbournes block asphalt and medin to corresent integrand. 0.3-1.2 Brown or light brown median to coarse said with some fire said		PID O		
				unateril 1.4. 2.4 Reddyl brown to brown medicin sanda the a little fine said and mus of coarse said. Moist 2.4-3.8 Brown to light brown medicin sund with a lift! The said and a little coarse said. Moist	41	0 0.3 0.1		
	MC-2 5-10	3.8/5.0	1400	5-5.7 Drown to like brown median sand with a little fine 5.7-9- Brown to slive brown median to coarse sound and grown with a little fine sound and a torus of		0,4 0,5 1,3		
	7-9° PID 145 = 1493			till life appearance. Sweet organic order.		d		
	MC-3 10-12.7 10-12 POBICHS = 2614	2.7	1405	10-12.7 Brown to reddich tower to oline brown median to course said and gravel Moist, massive with allife fire said and a tree Till like appearance. Sweet organic ols	9			
				THE THE STATE OF STAT		190		
Not	ies							

Oper Logg Chec Date Bori	ractor: Zelova rator: Zelova r	FC	Sampler	e ID/OD: — /OD: — 1.75°JD  MacroCorl Wt./ Fall: MO	Definitions: S = Split Spoon Sample U = Thin Wall Tube Sample U = Insitu Vane Shear Test q, = Unconfined Compressi wob = veight of 140 lb. har wer = weight of rods we = Water Content, percet oe = Organic Content, percet	veStrength ( nmer	paf)	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	
	MC-1 0-5 PINHS=517 0-5	4.0/5.0	1425	0.2-0.8 Brown methodo coarse sund, 0.2-0.8 Brown methodo coarse sund, 08-1.0 Darbonn median sund with motern coul a type of the tocome son 1.0-3.0 Reddish brown median su	and grovel, some conjuic		P10 9.9 14.9 38.5	
				Moist, massue some not these and with a land a frage of line sound. It	sorse sud.		34.5 16.3 32.6 35.0	
	MC-2 5-9.2 PIDHS=2.1 C-8	315/4.3		Brown to stive brown medium to a antiground with a little fine sand of silt. Very moist to wel, massine,			27.7 44.6	
							24.1 16.2	
		-						
Not	tes		1	,				
1								

)pe	tractor: Zelbra rator: Juson Freder	rih	Drilling N Bore Hol Auger ID	e ID/OD:	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample	c		
	ged By: J. Rawclift	<i>2</i>		MacroCore	V = Insitu Vane Shear Tes q = Unconfined Compress		psf)	
	Start/Finish: /1/15/10			Wt./ Fall:	woh = weight of 140 lb. has wor = weight of rods	mmer		
	ng Location: ————————————————————————————————————		Water Le	vel*:	wc = Water Content, percer ac = Organic Content, percer			
(er.	Sample Informa	tion						
Depth	Sample Informa	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	
	MC-1 0-5	3.6/5.0	1505	0-0,2 Clack asphult.		(DID)		
	PIDHS = 0.5			0.2-1.2 Brun medium to course sur with a little fine said. 1.2-1.5 Very dark brawn medium sund with organics and a little fine seurl.				
				115-21 Reddish brown median soul	wither	6.6		
		<del> </del>		The same of the sa	الت و	3.3		
				211-5 hight brown to brown the com	e sendon	1.4		
	A	0.7/1.1	18-1	a hill fine sund cont faint strate for	stron.	1.,	-	_
	MC-2 5-61	7.71.1	1510	5-61 Brown to light brown me sand and	41000	0.5		
	PID 14 = 9,4			to trees of course send outgrow	el.	0.4		
	5-6	<u> </u>	ļ	, , , , , , , , , , , , , , , , , , , ,	*			
		<del> </del>	-					
				-				
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		-						
			<del> </del>	-				
		<del> </del>	<del>                                     </del>					
No	tes			F				
				7				
1								

MACTEC	Project: Olin Chemical Superfund Site Location: Wilmington Client: Oliu	Boring: 5B-489 File No.:
Contractor: Zelbyg Operator: Tyson Frederich Logged By: T. Rawdiffe Checked By: CTM Date Start/Finish: 11/15/10 Boring Location:	Drilling Method: Direct Roll  Bore Hole ID/OD:  Auger-ID/OD: 1.75° ID  Sampler: Macro Core  Hammer Wt./ Fall: NA  Water Level <sup>3</sup> :	Definitions:  S = Spht Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q_= Unconfined Compressive Strength (psf) woh = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent
Ref. Elevation <sup>1</sup> :		oc = Organic Content, percen
Sample Information	Sample Description and C	Unifie Classi Analy Collec (Y/N)
MC-1 0-5 3.6/5 See SA-458	1.2-1.2 Brown medanto are	non medin
Denlys.	1.4-2.1 Reddyle brown med some organics and a little 2.1-5 Brown to light brown a little fire sunt and a little course sunt and 5.14 (0-5	medium sund with le to torres Similartos
MC-2 5-9.0 3.1/4		y media 0.1
7-9- BIDHS = 14.0ppm 11/16/10	Bottom of hong - 9.0 B	65 50.4
11)16/10 MC - 3 2.1/2 10-12.5 PID=HS = 28:2 pm	Obst Olive to olive brown medium gravel with a 1886 Fine sould Wet, massme, (Till).	and trues of silt 33.1
	Return at 12.5'BGS	100
Notes Accidentable reduction as I mixed up 50.440 showy change of PID of	at 3B-489 to where anlyth and SB-489 bushows. Coopered orlings at 9-12.5% Stepped out to	See "49 100
Stratification lines represent approximate boundaries and under conditions stated. Fluctuations of ground	vetween soil types, transitions may be gradual. Water level readings have been mad ater may occur due to other factors than those present at the time measurements we	Page / of / Boring: SB-489

	MACT			Project: Olin Chemical Superfund Site  Location: Wilmugton. Mass.  Client: Olin	Boring: $5B$ File No.:	-490	
Ope Logg Chec Date Bori	tractor: Zebru  rator: Juson Frederi ged By: J. Rawcliffu cked By: CTM  start/Finish: 11/15/10 ing Location:	S S	Bore Hole Luges ID/ Sampier: Jammer \	ethod: Direct Well  DD: 1.75" ID  MacroCore.  Nt./ Fall: NA-  Yel3: AST 8-9-	Definitions:  5 = Spili Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q, = Unconfined Compressive  weh = weight of 140 lb. hamn  wor = weight of rods  we = Water Content, percent		
Ref.	Elevation <sup>1</sup> : Sample Informat	ion			oe = Organic Content, percen		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification Analytical Collected (Y/N)	•
		A	600	0-0,2 Asphilt 02-5B-490-0.00.2-101 Brown medium to coare sand an with a lible five sand, Massim (Fill), 11-23 Darkveditish brown to reddish be sand with a lible for sand and grove i	0/1.0-*** //3	S PID OIL	
	PIOHS = 9.6ppm 3-5			saind with a little fax soul and atrove is 2.3.5 hight brown to brown medium sou little tootpaces of fine soul and times o Moist, soul and stoot fication	MWHG G	0.2	
	MC-2 5-90	4.1/5.0 //		5-6.5 hight brounds bowwy medium		0,2	
	010)+5 = 18.4pm 7-9			Muist, some taint statio sites.	corse sand	0.3	
				und grantwith troves of true sand and moist to wet, Massing till-life appeara	silt. Very		
				Refuel at 10'B65 0 2-53-440-0.0/4	10 1115		
Note	es ·						
Note:	ification lines represent approximate b	oundaries between	n soil types, to	ransitions may be gradual. Water level readings have been made at times o other factors than those present at the time measurements were made.	Page Page 1	of	

	erator: Tason Freder	ch	Drilling I Bore Ho	e ID/OD:  S = Split Spoon Sample  II = This Well Table Security	le		
	gged By: J. Rawcliffx			/OD: /.75" TO R = Rock Core Sample			
_	te Start/Finish: 11/16/10		Sampler	q <sub>p</sub> ≈ Unconfined Compres	rive Strength	(psf)	
	ring Location:		Water Le	Wt./Fall: 1/A woh = weight of 140 lb. h			
	f. Elevation¹:		I water Le	we * Water Content, perceipted oc = Organic Content, perceipted			
	Sample Informat	ion					
Depth		Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	
	MC-1 0-5	3.6/5.0		0.0.2 Asphelt	120	PIO	
		3.0/2.0		0.7- 1 grown median some coare scul and ground		0	
-	0-5 - 014ppm			1.1-1.3 Darkhamen median sund with a little time sand	_	0	
				Aire sundi 2. 7 - 5 Brown to high town med un a little fine sund audia assessund			
	MC-2 5-10 PAD HS = 94PPM 7-9	4.0/5.0	09/10	5-6.1 higher brown medica sand with a little five sand and traves of cocase sand. Moist, Knintly stratum with some olicholorum medicato cocase saul.			
				7.5-10 Oline bovento darle I opry median course sunt and grown the ne well and terres of silv. Very m Verytophus sweet organi ad		15.2 85.4	
				Refusel et > 10° B65		2500	
1							

Ope Log Che Date	ntractor: Zebru prator: Juson Freder ged By: J. Rawcliffa cked By: AM e Start/Finish: 11 10 10	<u> </u>	Sampler Hammer	e ID/OD: — /OD: /,75" I O : MacroCore. Wt./ Fall: WA	Definitions:  S = Spiit Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q, = Unconfined Compressive Strength (psf)  woh = weight of 140 lb. hammer  wor = weight of 164 ls.				
	ing Location:	<del></del>	Water Le	vel³:	we = Water Content, percent oe = Organic Content, percen				
	Sample Informat	ion				——————————————————————————————————————			
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	i	
	PIDITS = 7. 1 ppm	3.5/5	1005	0.2-0 Reddill brounds medica Surland grand.	11		PIN) 65		
				1.2-2.0 Reddich brown Give sweet and traces of sta	your delaws		25.8		
	MC-2 5-7	2.0/2.0	1010	2.0-5.0 Brown to light for medium 3 a little five shuland traces some faint struttication 5-6 hight brown to brown medium som	luith a		7.4		
	FIN HS = 0,7 ppm 5-7			1. He fire sand, 6-7 Reduct brown to brown medium to co and great with a live firesond. Tip of sands become dive deuse till-like w	extend.		3.1		
				Bottomof boing = 7' Refusel.					
Note	es								

	MACT	ГЕС		Project: Olin Chemical Superfund Site  Location: Wilmstram. Mass.  Client: Olin	3-40	93		
Ope Log Che	ntractor: Zebra prator: Juson Freder ged By: J. Rawelid cked By: CTM start/Finish: [1] w/10	i	Bore Ho Auges ID Sampler	Method: Direct flog	Definitions:  S = Split Spoon Sample  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test q, = Unconfined CompressiveStrength ()  wob = weight of 140 lb. hammer			
Bori	ing Location: —		Water Le		wer = weight of rods we = Water Content, percer	nt		
Ret.	Elevation¹: Sample Informa	ition			oe = Organic Content, perc	en'		
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	MC-1 0-5	2.1/5.0	1025	0-0.2 Asphelt		PIO		
				5and adgrad. Moist, mussing	40	0.1		
	PIOHS = 0.5			0.8-1.3 Reddish brown mediju sandus	.0			
						0:6		
				1.3-5 Brown to light brown to reddish median sand with a little fine sound. I slightly smitified.	hour	0.3		
	MC-2 5-6.5 PIN HS = 0.5 4-6	1.4/15	1030	5-6,5 hight brown medun soud u little fire soud, Moist, stratified		0		
_				Refusalat 65'B65				
-								
	,							
Note	es			*				
Photo	Masta lan and							
Strat and	mication lines represent approximate under conditions stated. Fluctuation:	poundaries betwe s of groundwater i	en soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 104 Boring: 56	1 3-49	93	

ractor: Zebra ator: Juson Freder			0.100	File No.:			
ator: Juson Freder		Drilling I		Definitions:			
	rick	Bore Ho	e ID/OD:	S = Split Spoon Sample U = Thin Wall Tube Sample			
ed By: J. Rawcliff ked By: cTm	<u> </u>			R = Rock Core Sample V = Insitu Vane Shear Test			
ked By: CTM Start/Finish: () \( \( \) \( \)	ή.	Sampler	Macrocore.	q, = Unconfined Compressi woh = weight of 140 lb. han	ve Strength (	(psf)	
g Location:	<u> </u>		wol <sup>3</sup> . 2 7 - 6 -	wor = weight of rods			
levation1:							
Sample Informa	ation						_
Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	
MC-1 0-5	8,2/5.0	1145	0-0 2 Asphalt	<b>K</b> A		PID	
				Sanduni		n Yes	
DIAHS - 12.9			grall. OC-5B-494-0/1.0- 12	O			
	+		11-1.6 Brown to bour dock long with and			0	
<u> </u>	1		Cin Carley la recession has been	reamon	-	0	-
			11 5 hills have been and	6			
			a like but some and a home of course	and 1/	1		
			will save meld la land a trimed land	no	Res		
			WILK JOHN TEAMYOR NIMORA STAINED PAYERS.				
MC-2 5-10	3.4/5.0	1155	5-71 hould brown to known medica <	and with			
			a little fine soud and a trone of correce	and.		3	
		ļ	haymoist to wet, strutified with sow	course			
	<del> </del>	ļ	layer and some reddish strings lugers.			0	
Duolate = ! =			1215 OC-5B-494-610/8-U-XXX		_		
1005-15	-	ļ	7.1-10 Brown to shire brown medium	tocourse			
0-0	+		sudwith same grand and a little fin	escent.		O Yes	
	+		Usey muist to met, whosews grandes to till-	humbal			
	<del> </del>		at hottom of recovery.			0	
MC-310-14	2.0/4.0	1205		0 0	-		_
4	7.7.	10. V.)	11-14 DNWy medica to coarse su	mel covered		0	
				Net,			
P1 10 HS = 2.4			deuse, massive,			0 185	
12-14			1210 OC-56-494-12/14-XXX				
	<del> </del>						
		1			1 1		
	Sample Information!:  Sample Information:  Sample No.  MC-1 0-5  PIDHS = 0.9  V-5  MC-2 5-10  MC-2 5-10	Sample Information  Sample No. $MC-1  O-5  3.2  3.0$ PID Its = 0.9 $V-5$ $MC-2  5-10  3.2  5.0$ PID Its = 1.5 $V-5$ $V-5$	Sample Information  Sample No.  **BE   **BE	Sample Information  Sample No.  Sample Description and Classification  Sample No.  MC-1 0-5 8.25.0 1195 0-0 7 Asphalt  0.2-1.1 Reduct how we with to  great, oc-56-494-0/1.0-12  111-1.6 bown to being destroyed to red in section  five sund and organic motion.  1.6-5 hight borner to bown medium se  a little first sand and a trove of coorse se  with some reddish hower a trimed layer.  MC-2 5-10 \$155.0 1155  5-7.1 hight borner to bown medium se  a little fine send and a trove of coorse se  height if the send and a trove of coorse se  height if the send and a trove of coorse se  height if the send and a trove of coorse se  height if the send and a trove of coorse se  height if the send and a trove of coorse se  height if the send and a trove of coorse se  height if the send and a trove of coorse send  and of the send and a trove of coorse send  send with some ground and a little fine  by muist to met, mossur grades to till-  at hottom of recovery.  MC-3 10-14 3-240 1205 10-14 Brown medium to coorse sen  and with a little fine send. I	Sample Information  Sample Description and Classification  Sample No.  BE  MC-1 0-5 8.25.0 1195  0.2-1.1 Reduish how we with 40 Sand will  graph oc-50-(914-0/1.0- 1200  1.1-1.6 brown to very dock trought red medium to  fire send and organic motent.  (1.6-5 hight brown to brown medium sand  a fill true sand and a trove of coarse send how with some reldish how a string layer.  MC-2 5-10 \$155  5-7.1 hight brown to brown medium sand with  a littliffine send and a trove of coarse send.  Neumoist to beet, strainfied a ist some coarse  layer and some reduish string layers.  PIDITS = 1.5  7.1-10 Drown to while brown medium to coarse  send with some grand and a little fine send.  Well of the send and a little fine send.  Well of the send and a little fine send.  West of the send and a little fine send.	Sample Information  Sample Information  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Description and Classification	Sample Information  Sample Information  Sample No.  Sample Description and Classification  By Sample No.  Sample No.  Sample Description and Classification  By Sample No.  Sample No.  Sample Description and Classification  By Sample No.  Sample Description and Classification  By Sample No.  Sample Description and Classification  By Sample No.  Sample Description and Classification  By Sample No.  Sample Description and Classification  By Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Sample No.

per	tractor: Zebru		Deilling	Method: Direct Rel	7. 7. 4.4			_
	rator: Juson Freder	icla	Bore Ho		Definitions: S = Split Spoon Sample			
ogg	ged By: J. Rawcliff			MOD: 1.75" TO	U = Thin Wall Tube Sample R = Rock Core Sample	•		
	cked By: CTm		Sampler	: MacroCore.	V = Insitu Vane Shear Test q <sub>e</sub> = Unconfined Compressi		(naf)	
_	Start/Finish: 11 14 10		Hammer	Wt./ Fall: UA	weh = weight of 140 lb. har wer = weight of rods		<b></b> ,	
	ng Location: ————————————————————————————————————		Water Le	ovel <sup>3</sup> :	we = Water Content, percen			
er.	T	41			ee = Organic Content, perce	en ·		
	Sample Informa	tion			<u> </u>	T =		F
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	
	MC-1 0-5	4.0/5.0	1315	0:0.9 Very durkbrowy to black on	edia	1-0	EID	r
				Fine soul and organics			0:1	l
				0.9-2 Reddish brown median send in	P		5.1	l
		-	ļ		•		0,1	l
$\dashv$		+		Fine Sound from silv some sout files.		-		H
	PID 1+5= 1.7	<del> </del>	<del> </del>	a true of fine and course send. N	just the		1.3	ı
	3-5	1		a true of ful and course gent, N	0		0,6	ŀ
				semestration.			U <sub>t</sub> G	l
							0:3	
	MC-2 5-6.5	15/1.	7320	5-5.3 Bromsolight from a medical atrace of free soul and coarse of 5.3-6.5 Brown to olive brown medical atrace of	in tocourse		e)	
				Bottom of horry = 6.5' Referred (300	a benjet).			
		<del> </del>	1					
ote	es Made 2 a He	eupts +	but t	net with refuselat less than 51.	365			

ANHS = 1.0  ANHS = 1.0  ANHS = 1.0  ANHS = 1.0  ANHS = 1.0  ANHS = 1.0  ANHS = 1.0  Brown to view brown to own with a life coarse send and strains of fine sand. Moist, some winds strains from root files.  ANHS = 1.0  Brown to view brown to be medium to coarse sand and strains of fine sand. Moist, some winds of fine sand. Moist, some winds of fine sand. Moist, some winds of fine sand. Moist of fine sand.	Collected (Y/N)	ner	U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q= Unconfined Compressive woh = veight of 140 lb. hann wor = veight of rods we = Water Content, percent oe = Organic Content, percent	o Core.	Auges ID/OI Sampler: Hammer Wt	i	J. RawcliA	rator: Jus	ogg
Sample No.   Sam		ner	R = Rock Core Sample V = Insitu Vane Shear Test q <sub>e</sub> = Unconfined Compressive woh = weight of 140 lb. hamr wor = weight of rods wc = Water Content, percent oe = Organic Content, percent	o Core.	Sampler: Hammer Wt			ned By: T.	oggi
Sample No.  Sample		ner	q <sub>o</sub> = Unconfined Compressive woh = weight of 140 lb. hams wor = weight of rods we = Water Content, percent oe = Organic Content, percent		Hammer Wt	)	(T)		
Sample No.  Sample Description and Classification  Dayle from your do how an address or parties.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Dayle from your do how an address or parties.  Sample No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Dayle from your do how and sample or parties.  Sample No.	cted		wor = weight of rods we = Water Content, percent oe = Organic Content, percent	/A		)			
Sample Information  Sample Information  Sample No.  Sample Description and Classification  Polytic No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Polytic No.  Sample No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Polytic No.  Sample No.  Sample No.  Sample No.  Sample Description and Classification  Polytic No.  Sample No.	cted		we = Water Content, percent oe = Organic Content, percent		Water Level				
Sample Information  Sample Description and Classification  Page 100  Sample No.  BE  Sample No.  BE  Sample Description and Classification  Page 100  Sample No.  BE  Sample Description and Classification  Page 100  Sample Description and Classification  Sample Description and Classification  Sample Description and Classification  Sample Description and Classification  Sample Description and Classification  Sample Description and Classification  Sample Description and Classification  Sample Description and Classification	cted								
Sample No.  Sample No.  Sample No.  MC-1 0-5 3.0/c.v 1350 0.10 Dark from the young of thrown medium sound with a little fine gold corpanies.  ANHS = 1.0  ANHS = 1.0  ANHS = 1.0  3-5  MC-2 5-6.5 1.41.5 1400 Brown to the brown to be made and strain from the fine sound of fine sound with a little coarse sound and of fine sound with a little coarse sound and of fine sound sound with a little coarse sound and of fine sound sound with of fine sound and silr. Moist,  1405 C-56-446-5.0/ XX	cted	rtion							(61. L
MC-2 5 76.5 1.4/1.5 1403 Brown to vine brown to be much as fine of fine soul and source of fine soul and source of fine soul and source of fine soul and source of fine soul and source of fine soul and source of fine soul and source of fine source	cted	= 1				tion	Sample Informa	San	
MC-2 5 76.5 1.4/1.5 1400 Brown to vine brown to be much as fine soul and street of fine soul and soul and soul and soul and street of fine soul makes of fine soul. Moist, some and street of fine soul and street of fine soul and	Colle	Unified Classifice	1		Тіте		ample No.		
AV HS = 1.0  3-5  MC-2 5-6.5  MC-2 5-6.5  MC-2 5-6.5  MC-3 5-6.5  MC-2 5-6.5  MC-3 5-6.5	מי	l li	n medium enics. 46-020/1.2-27	Dark brown to very d brownith a little fine soul or	1350 0	3.0/2.0	0~5	MC-1 C	
AVHS = 1.0  3-5  MC-2 5-6.5  1402 Brown to vine brown to 11 median to cocres sunt and some with of fine sand and silr Moist, 1405 0C-5B-496-5.0/ xx	´ I		medium	eddich brown to brow.	į.		5=1.0		
DIDHS = 0.9   1403 Brown to view brown to le made to coarse sand and some with of fine sand and silr Moist, 1405 oc-5B-496-5:0/ xx	. <b>1</b>		wo undi	future, rooffiliers	1		r5 = 1.0	ANHS	
DIDHS = 0.9 coarse sand and some with of fine sand and silr Moist,  1405 oc-5B-496-50/ xx  Bottom uy = 6	):1				5	1.4%-		3-5	-
Bottom uy = 6	9		of fair	sud and grand with	C C	11/11/2	5=0.9	DIN HS	
Bottom uy = 6 (mude 20 Heupts got refuel 6 both tenes)	>.1							5-6	_
		es)	s both tw	Lateupts got refuel	B				
									-
	-								-
Buring wented next to pile of large boulders on ruch outerup			h cotan	of large boulders or re	2xt 40 p	ted ne	ring luca	Bori	otes

		MACT	TEC		Location: Wilmystern. Mass.  Client:	Boring: 50 File No.:	3-1	197	P
	Con	trootor: Z. h.		Delline					
		tractor: Zebru rator: Tuson Freder	+ 10	Drilling I Bore Ho		Definitions: S = Split Spoon Sample			
		ged By: J. Rawcliff			1/OD: 1.75" TO	:			
	Che	cked By:	<u> </u>	Sampler	: MacroCore.	R = Rock Core Sample V = Insitu Vane Shear Test			
		Start/Finish: ////			Wt./ Fall: 1/A	q <sub>p</sub> = Unconfined Compressive with = weight of 140 lb. ham		(psf)	
		ng Location:			evel <sup>3</sup> : 26-7 - 86 S	wer = weight of rods			
	_	Elevation1:		Truce. Ec		we = Water Content, percent oe = Organic Content, perce			
		Sample Informa	tion						
	Depth	Sample No.	Recovery	Time	Sample Description and Classification	1	Unified Classification	Analytical Collected (Y/N)	Elevation
ク		MC-1 0-5	3.2/5.0	1445	0-0.2' Ashalt	/w(0)	100	Pin	ш
					0-0.2' Asphalt oc-SB 497-0 U/1.0-XX	in the same		_	
								3,5	
					0.8-1.0 Darkbrown media surl with a to sound and excrete sent ergonics 110-5.0 Brown to stylely reddish brown a media santwish a little fire sant a of course sent. Motst, some strapficit	medfine		7.9	
					110-5.0 Brun to stably reddish brown	to like brun			
					of course sand moist, some stransfruit	untrues		21.7	
5			3=/	1		•		34	
		MC-2 5-10	3.5/5.0	1505	with a dittle time said and trues of course	sessul.		18	
					Very woist tower, slight stratification	)		24	
		PIDHS = 35 6-8			6.5-10 Brunto olive brown medunt send and greedy with trues of fine.	to couse.		25	
					wet mussing.	,		18	
·		MC-3 10-13	2.0/3.0	1520	10-13 Olive braun to light of live by	Marin		5.8	
			ļ	ļ	medius to cookse contantonin	lunth			
	-				a little fine suntant site. Wet, mas	Sire		4.1	
					OC-5B-497-11/13-XXX (1505)			7	
					Refusal at 13'BES				
	Note	25 0 11 1-1	N A	A	11 -61 -61				
		2 a Heyrsts 1.	St Reh als Buldi	royl a	6 480 50-479 50-497 I				
	Strati	fication lines represent approximate	boundaries between	een soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page / of	/		
	and the	Seriemone seetes. I memations	, groundwater (	may occur due	ा प्रचार । स्टाजिंड प्राप्ता प्राप्टेड present at the time measurements were made,	Boring: SB	49	7	

MACT	rec		i , , ,	g: <i>58-5</i> 00
			File N	o.:
ractor: Zebru				
ator: Juson Freder	ick	Bore Ho	le ID/OD:  S = Split Spc	
		Auges ID	//OD: /,フラ″ エク   R=Rock Co	re Sample
Stort/Finish: 211-		Sampler	WacroCore.	ned Compressive Strength (psf)
	,		wor = weigh	
ig Location: Elevation¹:		Ivvaler LE		Content, percent Content, percen
Sample Informa	tion			
Cample Internet		9	Sample Description and Classification	Unified Classification Analytical Collected (Y/N)
Sample No.				3 S A S E
MC-1 0-3	1.2/3.0	1020	0-0,45' Concrete slab reinforced with in	ive much PID
	-			
•			0.45-1.1 Brown median to coarse send an prevel with a little five send and a true of s	itr. 0.3
	1			
P101+5=019		<b></b>	1025 OC-50-500-0,5/8,0-xxx	
4.5-3			• • • • • • • • • • • • • • • • • • • •	
			1.1-3,0 Olive to chird grove median to cooks &	and
MC C			and grant us to hard	1
	ļ		SULTE IN	
	-		an cicic)	
<del></del>	-	ļ		
346.4	<b></b>			
mc-2	-	ļ	Encourant refuselat Below	
	<del> </del>		V	
	+	<del> </del>		
<del>- 10</del>	<del> </del>	<del> </del>	Refreshet 3 July all.	
······································	<del>                                     </del>	<del> </del>	The state of State of	
· · · · · · · · · · · · · · · · · · ·				
	<del>                                     </del>	-		
	1			
.,	<u> </u>			
	stor: Tas on Freder ed By: T. Rawclift ked By: CIM Start/Finish: 11/17/10 g Location: Elevation': Sample Informa  Sample No.  MC-1 0-3  PID(+5-0.9 d-5-3	ator: Tas on Frederick ed By: T. Rawcliftc ked By: CIM Start/Finish: 11 17 10 g Location: Elevation': Sample Information  Sample No.  W(-1 0-3 1.2/3.0  P101+5 = 0.9 d.5-3	ator: Tason Frederick  ed By: Tr. Rawcliff  ked By: Com Sampler  Start/Finish: 11 17 10 Hammer  g Location:  Sample Information  Sample No.  Water Le  Le  PIDITS = 0.9  d. 5-3	Client: Oly File N  ractor: Zebra Drilling Method: Olivect flosh ator: Jason Frederick Bore Hole 1D/DD:  ed By: J. Rawcliffe AugestD/OD: /.75"ID Recator Red By: Com Sampler: Macrocore.  Start/Finish: 11\77\10 Hammer Wt./ Fall: NA  g Location: Elevation!  Sample Information  Sample Information  Sample Description and Classification  Sample No.  ### Sample No.  ### O-\$ 1.2/3.0 1020 0-0.45" Courage start on marked with a high fries marked at true of s  (Surgade hil)  1025 0C-56-500-0.5/5.0-xxx  4:5-3  11-3.0 Olive to clive gave median to coarse surface side of the surface of s  Collegand of the surface of s  Collega

	MACT	EC		Client: Olin	Boring: <i>S§</i> File No.:	50	1	
Ope Log Che Date Bori	tractor: Zebra rator: Jason Freder ged By: J. Rawcliffs cked By: J. Start/Finish: 11 7 10 ing Location: Elevation':	ck	Bore Ho Auges IC Sampler	le ID/OD: —  I/OD: /,75" TO  : MacroCore.  Wt./Fall: UA  Evel <sup>3</sup> :	Definitions:  S = Spit Spoon Somple  U = Thin Wall Tube Sample  R = Rock Core Sample  V = Insitu Vane Shear Test  q = Useonfined Compressive Strength (ps  woh = weight of 140 lb. hammer  wer = weight of rods  w = Water Content, percent  oe = Organic Content, percent			
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	MC-1 0-3	(4/2,5	(055	0-0.4 Concrete Floor State  0.4-1.1 Aroun to duritymen mediun to sand and quell with a true of frie san West, mussive (Subgall hill).  0C-58-501-0:5/3.0-xaa (1)	o couse Louisit.		0	
	PIDITS = 0,4 pm 1-3			a true of fibe said. Wet.	lwith			
				sud and grand a	A 40		0	
				Refund at 3'B65				
Note	25 D		<i>^</i> 1 (					7
sla	000015 (116)	~~		building closest to SB-405 approx. I'm 5 = 6.5' below greats	est of ival	1. 60	mute F	hour
Strati and u	ffication lines represent approximate to inder conditions stated. Fluctuations	oundaries betwo	een soil types, may occur du	to other ractors than mose present at the time measurements were made.	Page / <sub>の</sub> A Boring: <del>多も</del>	'-   '	-04	-

og he ate	tractor: Zebra rator: Jason Freder ged By: J. Rawcink cked By: Cm start/Finish: [1] (0 ing Location: Elevation': Sample Informat		Bore Hol Auges ID Sampler: Hammer	Method: Direct Mosh e ID/OD: —  /OD: /,75" TO	Definitions:  S = Spili Spoon Sample  U = Thin Wall Tube Sample  V = Insitu Vane Sheer Tee  q <sub>0</sub> = Unconfined Compressi wah = weight of 140 lb. har wor = weight of 160 lb. we were weight of 160 me  e = Organic Content, percet  oe = Organic Content, percet	i veStrength (j namer	pel)	
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	MC-1 0~3	115/25	1120	0-0.4 Consider slab 0.4-1.0 Brown growel with some of median to course said. Sulprule	oalite fill, met.		P/Y) O	
	PIDHS = 014ppm 0.5-3			1.0-30 Brown mediu to coake s grand with a trove of fine same massive.	end and l. Wet,		0	
	V4						0	
	MC-2 3-5	1.0/2.0	1130	3.0-5.0 Brun to light how medy course soul and growlwith a li above of his gred coulsily. Massing 0C-5B-502-3.0/5.0-XXX (113)	uto do		0	
	PIDHS = O.leppon			0C-5B-502-30/50-XAX (113)	5)		0	
							0	
ote Se	Borny 15 in bas	ement o	flab b	inding expression in NEcorner wish _ h. Floorslots is NGS belowgrade.	1	1	56-501	

Г		0		Project: alim, wilmington				
	amed			Location: Be	oring: 🧲 1	3 - 4	180	
1	dilie			Client: 59 - 400 Fi	le No.:			
				@11M				
Con	tractor: TDS		Drilling N		efinitions:			
_	rator:		Bore Hol	e 10/00.	Split Spoon Sample Thin Wall Tube Sample			
	ged By:		Auger ID	/OD: 2. • " × 2.25 "	Rock Core Sample Insitu Vane Shear Test			
Che	cked By: www )	12/13	Sampler:	N30	Unconfined Compressive	e Strength	(psf)	
	Start/Finish: 12 -11 -			Wt./ Fall: wor	= weight of rods = Water Content, percent			
Bori	ng Location: 59 · ·	180	Water Le	vel <sup>3</sup> : 29'66)	Organic Content. percen	t		
Ker.						_	- 10	
ı	Sample Informa	tion				_		
1						Unified Classification		PIO
		<u>\$</u>		Sample Description and Classification		ca	Analytical Collected (Y/N)	Elevation 6
ĮĚ		Š		Cample Description and Classification		ied	lyti	<del> </del>
Depth	Sample No.	Recovery	Time			Init Slas	N I N	3
				0 . 0.2 : Asphal+			400	
9	/	5.01	س.	0.2 - 1.2 ; Mesty brown . re	ed l	SP		30.
1		2.8	1	brown med SAN			7	50.
5				peerly greded				
1				1.2 - 2.8 : Same as above by	ut bran	<b>4</b> -		
					+04/ 4046			
5	OC-58-480.	5.0/			-	SM		
1	6.018.0 -X44		10:10		4	_	Y	24.
9.8				Sond and grave	1,5000	•		
۱''۹				2.243 2.2-3.3; Mosting brown				
				poerly graded coorse she				
				Same growel , wet	~ 0,			
				some gracel, wer			411	
1				0-6-10-				
ı				Refusal @ 9.81				
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Stratif	ication lines represent approximate l	boundaries betwe	en soil types,	transitions may be gradual. Water level readings have been made at times	je <b>1</b> 0	6	1	

Boring: 480

	amed	0		Project: SB-484 Client: Client:	Boring: <i>S</i> File No.:	B -	484	
	tractor: TDS		Drilling N		Definitions: S = Split Spoon Sample			
	rator: Jenes		Bore Hol		U = Thin Wall Tube Sample R = Rock Core Sample	•		
	ged By: Am 1	2 112	Auger ID Sampler:		V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressi		(nef)	
	Start/Finish: 12-11		Hammer		woh = weight of 140 lb. har wot = weight of rods	nmer	(hat)	
_	ng Location: 5 8 - 4		Water Le		wc = Water Content, percen oc = Organic Content, perce	T mt		
Ref.	Elevation':				ot - Organic Comen. perce	TIS		
	Sample Information	tion						
Depth	Sample No.	Rесоvету	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation
	Guilipic IVO.			0 - 0.2; Asphal+		120	402	4
0		5.0(		9.2 1.0 1 5404444 5				Z·Z
5		2.9	/	0.2-1.2: Mostly brown	P004/4	SP	1	40
احا			/	graded med sand, unit	es av	l .		400
				10010 , 004 1.2.2.9; Same as above 14	-			
						-		
5- 7.9	96.58.484. 5.5/7.5.77	5.01	10:4		SAND	SP	4	29.6
				Cofusal a di ci				
				Refusal @ 7.5' B	6 9			
		211 211				1		
1								
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П								
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					111			
1 [								
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		m Br						
Note	<u>s</u>							
Stratifi and un	cation lines represent approximate bider conditions stated. Fluctuations	oundaries between of groundwater	en soil types, may occur due	to dutor actions after those present at the time measurements were made.	Page 1 <b>o.\$</b> Boring:	1 24		

	amed	0		Project: C. in . with the Location: 58-486 Client:	Boring: St	B - '	486	
Cont	tractor: TDS		Drilling N	fethod: Direct Push	Definitions:			
	rator: James	M	Bore Hol		S = Split Spoon Sample			
	ged By: DLC		Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample			
	cked By: MAIN 112	113	Sampler		V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressiv	e Strength	(nsf)	
Date	Start/Finish: 12 - 11 -	12/11	Hammer		woh weight of 140 lb ham	mer	(pst)	
	ng Location: 58-		Water Le		wor "weight of rods we "Water Content percent			
Ref	Elevation:	BL	water Le	vei :	oc = Organic Content, percer	ıt		
-								
	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Flexation
0				0.0.0.2: Asphalt				
١،	1	5.0/	5-4	0.2 - 1.0: Mistly brown -	ton			_
5		3.1	240	Desert gro		SP	2	3.9
ا ا		7.1		med SAND, son	no Cabble			
				grovel				
⊢				1.0 - 3.1 : Mestry brown . to		_		
5				poor'd graded m	ed SAND			
l i	DC - 58 - 486			uniform, leese,	904	SP	Y	ا ــ ـــ ا
1	8.0/10· xxx	2.4	12:15	0-2.4: Mostly brown . a	l auch	-	,	122
10				promu poorly gre	-30-4			
			7	med shoot some	Calables			
				Same armite				
				Resusal @ 10.2 B	GS			
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Note	<u>s</u>	***						
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Stratifi	cation lines represent approximate h	oundaries heter	een soil types	transitions may be gradual. Water level readings have been made at times	Page 10 F	8		
and ur	nder conditions stated. Fluctuations	of groundwater	may occur due	to other factors than those present at the time measurements were made.	Page 10 F	•		
				The state of the s		•		1
					Boring: 🖰	86		

	amed	0		Project: Clien	Boring: 5 (	3.5	-91	
Conf	tractor: TPS		Drilling N	Method: prect Push	Definitions:			
_	rator:	4		le ID/OD: 2 · 2 5 · ·	S = Split Spoon Sample			
	ged By: >CC		Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample			
	cked By: Man 1	2-113	Sampler		V = Insitu Vane Shear Test qp = Unconfined Compressi	ive Strength	a (psf)	
	Start/Finish: 12-11-/		Hammer	Wt./ Fall:	woh = weight of 140 lb han wor = weight of rods			
	ng Location: 59 - 4 Elevation¹:	191	Water Le	evel <sup>3</sup> :	we = Water Coutent, percent oc = Organic Content, percent	nt nt		
	Sample Informa	ition						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation-
	<b>©</b>	T		0 - 0.2: Asphalt				
5	06.	5.0/		graded \$ \$ Not+14 brown	rel, locse	50	7	1.7
				a.5- 1.6: Mestly donk bro	~n - dett	<b>∮</b> ∣		
				brown med poering to	ded 5 hm	>		
5	00-58-49	1 -		1.6 - 3.6 : Same as above	, 64+	SP		
-	6.0/8.0. 44/		15:0	brown gray		75	1	1.5
		5.01						
8	=======================================	3.6						
				refusel @ 8' BG	<b>E.</b>			
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Note	<u>s</u>			x ms   ms D and Dup	- 3			

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page ( • F !

Boring: 491



Project:

Location: 58-5CS

MILO

Client:

Boring: 59 · 50 3
File No.:

Contractor: T >5	Drilling Method: Direct push	Definitions:
Operator: Janes	Bore Hole ID/OD: 2.25"	S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By:	Auger ID/OD: 2-4" / 2.25"	R = Rock Core Sample V = Insitu Vane Shear Test
Checked By: MAM 1 12/13	Sampler:	q = Unconfined Compressive Strength (psf)
Date Start/Finish: \$2-19-17( 11	Hammer Wt./ Fall:	woh = weight of 140 lb hammer wor = weight of rods
Boring Location: 58-603	Water Level <sup>3</sup> : \$ '4' \$65	we = Water Content percent oc = Organic Content percent
Ref. Elevation':		

1	Sample Information						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Pib
0-5	CC - 58- 503 -	5.0/1.	<b>9</b> ; 00	0-0.2: Meghing by - dayly brown organics + Silt, some grade 0.2-0.5: Brown SAND, Uniform, 10010, day brown med-Fine 5.4ND, paoring graded, maist,	SP	7	-23
5	6.0/8.0- 7-4		9:15	coorse shub, lover of grown e 2.5.2.4. poorse grown	SP	7	*
19	13116 - 224	5.01	9:30	2.0.4.8; Mostly grow GRAVEL and SAND, dense, wet	SH	4	23.5
				Refusal @ 151 B65			
Note							

<u>Notes</u>

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page Lafl

503 Boring:

	amed	0		Project: a. in , with ,	Boring: S	B- :	504	<u> )</u>	
Logged By: AAAA				e ID/OD: 2 · 2 · 3 · ' ' /OD: 2 · 0 · + 2 · 2 · 3 · '  DUC / N J D  Wt./ Fall:	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 1401b hammer wor = weight of rods we = Water Content, percent oc = Organic Content, percent				
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	P(D) Elevation	
0 1 5	0.0/1.0-K+	5.0(	8:05	6.0.2: Asphalt 0.2-2.7: Masty brown. brown had paaring grades SAND, uniform, loose, de	d med	SP	٧	38	
5 1 10	00-58-504- 7.5/9.6-4-4	3.4	2:30	o + 1.3: Mesty game as 0.3  about  1.3.3.4; Brown - Tan - poor  graded med SAND, unifore  wet, dry	14	SP	Y	102	
				Refusal @ 9.81 Bo	35				

Notes

outsime some represent approximate boundaries between son types, transitions may be gradual, where we're readings have been made at time and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made

Page 0 of 1

Logo	tractor: TD5		Drilling M		Definitions: S = Split Spoon Sample					
LOGC			U = Thin Wall Tub			all Tube Sample				
Char	Logged By: DCC Checked By: MAM 1/21/3		Auger ID/OD: 7. 0" x 2. 5 " R = Rock Core Sample V = Insitu Vane Shear Test 6, 0 Unconfined Compressiv							
Date	Start/Finish: 12 - 11 -	12/1	Hammer		woh = weight of 140 lb ha	ive Strength mmer	(pst)			
	ng Location: 50 · 5		Water Le		wer = weight of rods we = Water Content, percen					
Ref.	Elevation <sup>1</sup> :		Ivvater Le	vei :	oc = Organic Content. perce	ent				
	Sample Informa	tion			İ					
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	P/D Elevation		
0				o.e. o. z : concrete fra			100	-		
-	00.58.505.		9:25	graded med SAND, 1005e,	becall	SP	146	30		
5	9.411.0.747	2.7					'	5		
				2.0.2.7 : Same as obove			-			
				cocrier (med.	ccrse,					
_				0.0-1.2: Mesty brown	tem					
5	04-58-505	5.0/		poeuly greded	med	SP	M	62		
	*5.017.0	1.2	9:46	GAND, loese, de		17.	7	94		
7										
7				Refusal @ 7.0 · B	65					
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Ope	tractor: TP5 rator: James	0	Drilling N Bore Hol Auger ID Sampler:	ID/OD: 2.25 **    S = Split Spoon Sample   U = Thin Wall Tube Sample   R = Rock Core Sample   V = Instru Vane Shear Test   V = Ins					
Date				Wt./ Fall:	q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 140 lb hammer				
	ng Location: 58-5		Water Le						
	Elevation¹:				or organic contain pare				
	Sample Informat	ion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Flovation	
				consoil some grass, some organism					
0- 5	9c.58.50c.	5.01 W.b	10:00	SILT 0.5.2.5; Mastly brown . red SAND and SILT, Uniform, do 2.5.4.0; Brown - red brown and silt, damp, Uniform	SAMO	5 M	4	1.3	
5 - 10	0c-58·506. 6.0(8.0 - xx)	6.e/ 2.0	10:20	o. o.q: Mesty brown ored graded mod SAMO. 511+, moist o.q-2.8: Some as above, b	same	5 P	7	6.2	
				9007					
0- 6	10/12-47-4	5.01	10:44	SAME + CRAVEL /	10050,	GH	7	10.5	
				Refusal @ 14' BGG	•				
Note Stratifi and ur	ication lines represent approximate b	oundaries betw of groundwater	een soil types, may occur due	to ones ractors than those present at the time measurements were made.	Page A of Boring: 50				

	amed	.0		Project: Oliminates  Location: 58-507  Client: Oliminates	Boring: 58-507 File No.:						
Con	tractor: TPS		Drilling I	Method:	Definitions:						
Ope	rator: Tames	James Bore Hole ID/OD: 2" 2.25"					S = Split Spoon Sample U = Thin Wall Tube Sample				
Log	ged By:		Auger IC	/OD: 2.0"   2.25"	R = Rock Core Sample						
Che	cked By: MAM	112/13	Sampler	T:							
	Start/Finish: 12-10-			r Wt./ Fall: woh = weight of 140 lb hammer weight of rods							
	ng Location: 58-5	67	Water Le	vel3: 2 15' B65	we = Water Content, percer oc = Organic Content, perc	eut					
Ref.	Elevation¹:										
	Sample Informa	tion									
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation (52)			
				Q-0-0-6-		-	100				
5	0.011.0.444	5.0( 1.40 2.5	13:2	five soud i loose	hight ND ( som		7	<0.∤			
5	See a Street	1. 3000		0.6. 2.0; Mostly brown . 9							
	oc. 58. 5 47.				groded	. 1					
1,	4x 4.0.810.9	2.9	13:30	med SAND, Toose, do	mp	51	4	20.1			
10				2.0.2.4: Mesty brown . 9							
`				SAND and GRAVEL	gamp	1 1					
10				0.0-1.8: Mestly brown .	groy						
1	OC - 58 - 507	5.01	13:50	med. coarse SA	by and						
15	13/15-224	1.8		GRAUEL, Wet, 10	2060	54	Y	60-1			
Ĺ					A						
15		2.01		0.0-1.3: Same as above	•	1 1					
h		1.3			same	GM	7	60.1			
17				rock frags   co	266105						
-											
				Refusal @ 17' B65							
Note	s										
Stratifi	ication lines concerned annexylmate.	a de la companya de l						ž			
and ur	nder conditions stated. Fluctuations	of groundwater	may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 1 6	t T					
				P							
_					Boring: 5	07					



Project: ciwi wilmington

Location: 58.508

Client: 0110 Boring: 53.502

File No.:

Contractor: ▼ ▷ ≶	Drilling Method:	Definitions:
Operator: James	Bore Hole ID/OD: 2 • 25 •	S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By:	Auger ID/OD: 2 • • • 2 • 2 • •	R = Rock Core Sample  V = Insitu Vane Shear Test

Checked By: MAM 13313
Date Start/Finish: 12-11-0 Sampler: Hammer Wt./ Fall:

V = Institu Vane Shear Test

q<sub>0</sub> = Unconfined Compressive Strength (psf)
woh = weight of 140 lb hammer
wor = weight of rods
we = Water Content, percent
oc = Organic Content, percent

Boring Location: **\$6 - 500**Ref. Elevation<sup>1</sup>: Water Level 3: 2 18 9 65

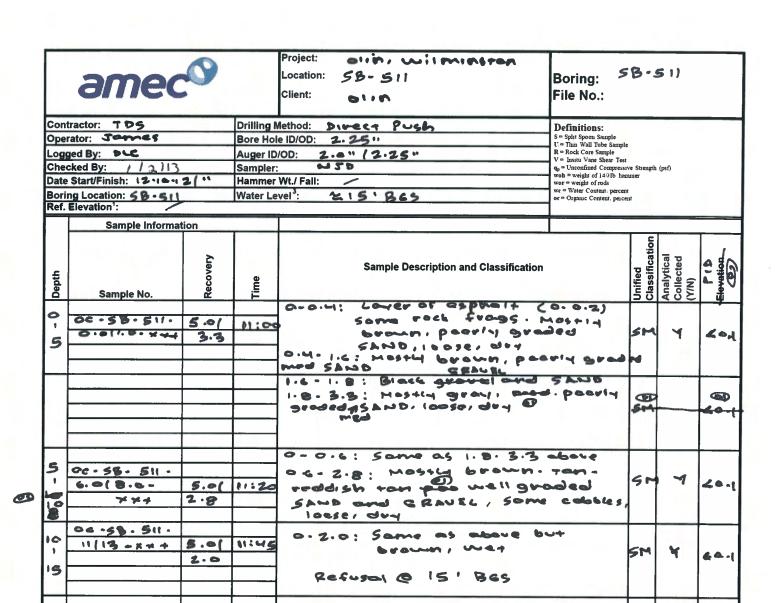
	Sample Information						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	
0-5	9c-58.50E-	5.01	13:25	O = c.q: Mostly brown poorly graded med SAND, some gravel, locse, dry  O.q. 2.0: Mostly dark brown. Black SILT, some organic	SP	٧	4.2
				2.0-2.5: Same as above, but lighted brown 2.5.4.3: Brown . tan. brown packly graded med Saws, loose	_		
5-10	8-9110-74		18:40	10 brown pooring graded med SAND, uniform, wet@ 91 869	5P	Y	6-7
Q- I	00-58-508.	3.0	13:5	1.3: Some as above 1.3-3.0: Brown - gray brown well graded samp and GRAURE, well med dense	sM	۲	1.8
				Refusal@ 14'869			
Note	<u> </u>						

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page of 1

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		1		Project: Olin, withington						
1	amed				Boring: 58.500					
1	amed			919 - 9 <b>- 9</b>	8.3	99				
				Client: File No.:						
Con	tractor: TDS		Drilling N	Method: direct push Definitions:						
Ope	rator:		Bore Hol	e ID/OD: 2 · 25 · Serit Spoon Sample U = Thin Wall Tube Sample						
Log	Logged By: See			(OD: 2 St. 2 2 2 1) R = Rock Core Sample						
	Checked By: MA- 112-117			er ID/OD:         2 · 3 · 3 · 3 · 3 · 3 · 3 · 3 · 3 · 3 ·						
Date	Date Start/Finish: 18-18-12			Wt./ Fall: wor = weight of 140 lb ha	mmer					
	ng Location: 500		Water Le	we = Water Coutent percent						
Ref.	Elevation¹:		Tracer Le	oc = Organic Contemt. perc	2111					
		•	4							
1	Sample Information	tion								
1					Unified Classification		PID			
ı					#	o =	_ =			
ء ا		\$		Sample Description and Classification	ا نِيْ يَوْ ا	<b>E E</b>	<b>6</b> 53			
Depth		Recovery	ae L		ifie iss	들을	ब्र			
å	Sample No.	2	Time		15 81.	Analytical Collected (Y/N)	Glevation			
	GC-58-509-		13:30	0.0 - 2.2: Brown , poorly graced	<del>                                     </del>	•				
0	P.011.0-44A			Fine SAMD and SILT	1 1					
1		5.0/		FIRE SAND OND SILT	514	4	2.7			
5	24 48 25	2.2								
	00-58-509	2.2		Refugal @ 51865		7				
	1.013.0-774		15:34							
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Stratif	ication lines represent approximate t	oundaries betwe	en soil types.	transitions may be gradual. Water level readings have been made at times						
and u	nder conditions stated. Fluctuations	of groundwater	may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	FI					
					(					
				Boring: 5	09					

		1		Project: Olin, wilmington					
	amed			Location: 5B·510 Boring: 5	8- 510				
1	dilieu			Client: File No ·					
				-O1. M					
Con	tractor: TP5		Drilling I	ethod: direct push Definitions:					
	rator: James		Bore Hol	S = Split Spoon Sample					
	ged By: DLC		Auger ID	OD: 2 .C ' - 2 .2	U = Thin Wall Tube Sample  R = Rock Core Sample  V = Institu Vane Shear Test  q <sub>2</sub> = Unconfined Compressive Strength (psf)				
		2/13	Sampler	A - Tilli Asile 2 felt.					
Date	Start/Finish: 12-13		Hammer		uner				
Bori	ng Location: 510	,	Water Le		t est				
	Elevation¹:			or Organic Content, parec					
	Sample Informat	ion							
					[ ] [ ] [ ]				
					Unified Classification Analytical Collected (Y/N)				
		Recovery		Sample Description and Classification	E C C C C C C C C C C C C C C C C C C				
Depth		8	9		Sail Sail Sail Sail Sail Sail Sail Sail				
e e	Sample No.	ž	Time		Unified Classificat Analytical Collected (Y/N)				
	OC-98.510.			G.D-1.9: Brown , peer'y graded	<del>                                     </del>				
0	0.011.0-4	5.01	12:55	fine SAND, lock, maist					
'		2.7		1.9.2.7: Gray poorly graded	RW A				
5		- 7		GRAVEL, some sond					
1				Abunda Jane					
				0.0 - 1.6 : Same as 14 - 7:7 about					
5	00-58. 510-	6-4		2011 07 11 0 7					
١.	7.017.0 - 244		13:00	but wer	SM Y				
مدا	4.0	2.0	13:00	1.6.2.0: Same as 0.0-1.4 done,					
9	7.0	2.0		out wet					
<u> </u>									
				Refugal @ 91 BGS					
1									
				And the second s					
	270 / 117		17.7						
		1111 -15 -1			1111				
Note	s								
Stratif	ication lines represent approximate b	oundaries betwe	en soil types.	ansitions may be gradual. Water level readings have been made at times					
and u	nder conditions stated. Fluctuations	of groundwater	may occur due	ansmons may be gradual. Water level readings have been made at times o other factors than those present at the time measurements were made.					
				Boring: 51	>				



**Notes** 

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 of 1

		-		Project: Olin / Will the the rem							
				Location: 58.512	Boring:						
1	amed				Boring: 5	ء - ج	12				
1				Client:	File No.:						
Con	tractor: TP5		Drilling N	lethod: Direct Push	D #						
_	rator: Jemes		Bore Hol		Definitions: S = Split Spoon Sample						
	Logged By:			OD: 2.0 1/2.25 x	U = Thin Wall Tube Sample R = Rock Core Sample						
	cked By: MAM	12/13	Sampler		V = Insitu Vane Shear Test qp = Unconfined Compressi		(psf)				
	Date Start/Finish: 12.19-12			Wt./ Fall:	woh = weight of 140 lb han wor = weight of rods						
Bori	Boring Location: 58 • 512			vel3: 141 B65	we = Water Content, percent oc = Organic Content, percent						
Ref.	Elevation¹:										
	Sample Informat	tion									
						Unified Classification					
1		<u>~</u>		Sample Description and Classification		cat	E b	10 4-			
Ę	1/1	Š		Sample Description and Classification		led is	ect X	O Table			
Depth	Sample No.	Recovery	Time			Unified Classifi	Analytical Collected (Y/N)				
				0-0.2; Asphal+		120	4 0 C	-4			
0	OC-56. 512 ·	5.0/	12:40	0.2 - 3.1: Mesting brown , por	some produ	6					
5	0.0/1.0 - xp4	3.1		med - Fine SAND ,		l	4	40.1			
12						58	Ι,	`			
								1			
				.0-2.4 : Same as obever t	.u+						
5	ac. 68- 512 .	5.01		some coese sand		SP					
1	6.0/8.0-XX	2.4	12:4	C 6 Lack 10-12 @ 0.7			7	60.1			
10				Course loder & g.	,						
10				0-4.3: Masty brown, w	4.11	214	,				
1	00-58-512-	5.01			coorse a		7	20.1			
15	13/15 - 444	4.3	13:0			7					
1				wet							
1				refusal @ 15	1800						
ı	The state of the s			12+09=16 1g	. 1262						
ı											
1					<u> </u>						
$\vdash$											
1	N. Barre										
						.					
$\vdash$				<del></del>	-			-			
Note	es es										
1											
	.,										
								1			

Page

Boring:

1 of 1

512

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.



Project: Olin, Wilmington

Location: 5B - 513

Client: ciin Boring: 58-513

File No.:

Contractor: 725	Drilling Method: derect push	Definitions:
Operator: James		S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By: DC4	Auger ID/OD: 2 < / 2 < 7 < 7	R = Rock Core Sample V = Insitu Vane Shear Test
Checked By: MAM / 12/17		qp = Unconfined Compressive Stre
Data Chart/Finish 17 -17 -17	Homemon M/4 / Polls	woh = weight of 140 lb hammer

Date Start/Finish:
Boring Location:
Ref. Elevation¹: 58-513

wor = weight of rods
we = Water Content, percent
oc = Organic Content, percent Water Level<sup>3</sup>: 2101 BGG

Recovery	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	F ( b)
	5.01 2:20 0.2. 0.7: Brown . 11ght brown poort 2.9 graded med . coarse 5 hub. Some grovel, 10050, dot 0.7-2.0: Black . gray poorty grade	S. 1. 1	Y	2.8
	2.9-2.9: Brown SILT/ ORGANICS, meist 2.7-2.9: Brown grown poorty graded med coarse Shubidans			1
3.0 2:21		SH	٢	2.6
2.01 E:3	1 - C.9. 1.2 . MOSTU DEGUM JACK	5M	Y	z. 4

Notes

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page

1261

Boring:

513



not an in wind Project:

869

Location: 5B. 514

Client: 01:0 Boring: 58-514

File No.:

direct push Contractor: TD5 **Drilling Method: Definitions:** Definitions:

s = Split Spoon Sample

t = Thin Wall Tube Sample

R = Rock Core Sample

V = Insitu Vane Shear Test

q<sub>0</sub> = Unconfined Compressive Strength (psf)

who = weight of 1401b harmer

wor = weight of rods

w = Water Content, percent

oc = Otganic Content, percent 2.25" Operator: Jomes Bore Hole ID/OD: 2.0 x 2.25" Logged By: DUC Auger ID/OD: oce Sampler: Hammer Wt./ Fall:

Boring Location: 58-514
Ref. Elevation<sup>1</sup>: Water Level<sup>3</sup>: 七15

Ref.	Elevation':						
	Sample Informati	tion					
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	P ( D Elevation
0				0.0-0.2 ; Asphalt			
1	OC-58- 514-	5.0/	8:50	e.z.z.a: Brown - dork brown.	SP	4	
15	0.011.0.744	2.9		brown poorly graded	1	,	7 - (
				med shab, uniform,	1	1	
				moist			
5				O. O- II H : Brown , pooring graded			
17	00-58-514-		9:00		dub.	4	1.6
l.'_	4.0(4.0 -MM	3.9		1.4-3.9 : Gray - brown - gray -	SP	,	
10				brown	-		
10				0.0-3.4: Gray, possing graded			
١,		5.01		med SAND, uniform, wet.	SM		
15		4.3		3.4. 4.3: Brown, well graded SANA		2	1.3
1				Same grove 1, same coldour	1		
<u> </u>							
15	oc - 58 - 514 .			o. o. 24; Brown . reddish brown			
'7	D17-119-4M	5.01	9:20	po well graded SAMD, some		Y	
20	15/17	2.6		gravel, some cobbles , wer	Sw	'	1.3
100							
<u> </u>							
20				perusal @ 20.5 'Bas			
``							
21				20.21: NO RECOVERY.			
$\vdash$		111 196 ;	*		$\sqcup$		
	-		3	During puring			
	-	1000 1000	$\vdash$				
		1111 111	<u> </u>				

**Notes** 

from 7.9' interval DUP. 4 corce ored xMS/MSD collected from 15.17' interval

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page | of (

	amed	0		Project: Client: Sp. 5/5  Client: Client: File No.:	Boring: タワ・515				
Ope Logs Che- Date Bori	e Start/Finish: 12-(2- ing Location: 5B-5(- Elevation':	5	Bore Hol Auger ID Sampler:	or:  or Wt./ Fall:  or Wt./ Fall:  or Weight of 140 lb hammer  wer a weight of rods					
Depth	Sample Informat	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Slevations 0.45		
0-5	0 - 5   5   5 - 5   5 - 5   5 - 5   5   5	5.01	10:04	0.0.0.2: Asphalt 0.2-1.2: Brown, poorly graded med shub, some fine son 1.2-1.6: Brown-black shub and sict, maist, uniform	SM	4	0.2		
5 10	6.018.0-**	3.6	10:20	2.6: Brown pasty graded med-fine SAND, uniform, maisty, 0.0.3.6: Brown gray brown pasty graded med SAND, damp	5P	7	0.4		
15	96. 28. 315 - 4xx	5.0/	10:44	c.c. 1.3: Grand . brown . grand well graded 5kmb, some grandly some cabbles . Subvaried cobbles, subvaried c.5" dictretor	SM		e.4		
19-19		4.01		1.8. 4.8: Grown - brown peorly growed med sand, some comes genel, wet Brown, well growed sand, wet	SW	Y	0.3		
				Refusal @ 191 BGS					
Note									

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page (of)



Project: elini wilmingren

Location: 58 - 5.1 6

Client: 6110 Boring: 58-516

File No.:

Contractor: TDS **Drilling Method:** 2.25" Operator: Jones Bore Hole ID/OD:

2.0 × 2.25" Logged By: DCC Auger ID/OD:

Checked By: Man 1/2/17
Date Start/Finish: 12-12-12/% Sampler: DUE Hammer Wt./ Fail:

Boring Location: 516 Water Level<sup>3</sup>:

~ 151BCS

Definitions:

Definitions:
S = Split Spoon Sample
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insit Vane Shear Test
g = Unconfined Compressive Strength (psf)
woh = weight of 1401b hommer
wor = weight of 1401b hommer
we we Water Content, percent
oc = Organic Content, percent

	Elevation¹:	Water	oc = Organic Content, perce	ut		
	Sample Informat	tion				
Depth	Sample No.	Recovery	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation E
5	0.6/1.6-14	5.0( N:10 2·3	Jame organics, some same  1.9 - 2.3: Same as above, but  brown, more Sand	sm	7	3.1
5	@c-28 -216-	5.0   1:2 3.8	ord - coarse same poorly graded med - coarse same, poorly graded med - coarse same, uniterm, wer	SP	~	1.3
10-5		5.01	graded med - coarse shubi wer	SP	X	1:6
5- 20	OC-58-516-	5.01 1114	1.1 - 1.4: Gray, poorly graded saus, wet	SM	4	1.3
			1.4.2.1: Some as above, but brown, Some fire Some 2.1-3.8: Brown, poerly grade med Sand, wet	g ~		_
			3.8- 4.5: Brown, well graded 5 kmb, some cabbles.  and gravel  Refusal @ 201865	-		_

**Notes** 

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1041

	amed	0		Project: 01:0, withington Location: 56-517 Client: 01:0	Boring: ≤ File No.:	B -	S17	
Con	tractor: TDS		Inrilling P	Method: direct push	Definitions:			
	erator: Jemes		Bore Hole		S = Split Spoon Sample			
_	ged By: DC		Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample			
Che	cked By: Mar 113	2 113	Sampler:		V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressi		- (nef)	
	e Start/Finish: (2-(2-(			· Wt./ Fall:	woh = weight of 140lb har wor = weight of rods	nmer	(hat)	
	ing Location: 517	-	Water Le		we = Water Content, percen			
	Elevation':	_	Water	Vei · J · · / · ·	oc = Organic Content. perce	nt		
	Sample Informat	tion		T .				
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	014 000
	œ-58·517-			0 - 0.2: Asphalt		T '		
0	9.011.0-774	5.0(	12:15			584	W	18:
5		3.6		Fine . med 5 has			17	
5				e. 6 - e.e: Black SILT, some		<b>₩</b>		
	1			a.B. 3.5; Brewn poorly 9	vaded	1	1	
	ac - 58 - 517 .			med - Fine SANE	•	+	$\overline{}$	_
5	6.018.0- 474	2.01	12:20			1 1	100	
1	8.010		4	1.9 - 2.1: Tan cabbles 1.0"		SM	I Y	0.0
10	<del></del>	3.3	<del> </del>		197	1	1 1	
		<u> </u>	igwdown	diameter		1 1	1 3.7	1
			1000	2.1+ 3.3: Brown , poerly		$\perp$		
	L	<u> </u>		med - coarse s	SA NO.			
10		5-01		met		1 )	1 !	
."		3.4		0-3.4: MOSTH Grown . 90		1	N	4.5
15		,		well graded sand, some	provel	154	1 14 1	
		· '		wet.			1 !	
	oc. 58. 517-			Same as above, but &	0 4 0 4 4 0	<del>     </del>	$\overline{}$	-
15		5.0/	12:40		, , , , , , , , , , , , , , , , , , , ,	12.0	4 . 1	
1	161-	-	12	(		54	/ V !	0.5
20		4.5		3.8.4.5: Grant , Angely are	-40-4		11 1	1 -
							U = I	1
	<b></b>		igspace	SAND, Same grow		$oxed{oxed}$		
20	L			0-2.4: Grow well grade	d			
1		400		GRAUEL , Some So	nd, wa	GM	1	1.5
i I		4.0/		2.4- 3.2: Brown , poorty		61	1-1	-
24		3.9		med SAND, wet	3 4000	1	i 1	1
	[			Med Sure			1 1	l
7						-		
	·			refugal e 24' BGS			i J	l .
1			$\overline{}$				i J	į.
1			$\overline{}$	1 <sup></sup>			. 1	l .
-				4			ı J	<u> </u>
Note	<u>s</u>	_						

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page / CE (

amec	Project: at in , withing ten  Location: 58 · 518  Client: at in	Boring: 59 File No.:	oring: <i>59-</i> 5 t <b>9</b> le No.:				
Contractor: TDS Operator: TDS Checked By: Date Start/Finish: 18 -1 4 -4 8 (1) Boring Location: SB - 519 Ref. Elevation':	Drilling Method: 3: vec? pvsh  Bore Hole ID/OD: 2.25"  Auger ID/OD: 2.0" 2.25"  Sampler: but  Hammer Wt./ Fall: /  Water Level 3: 3 4"	Second   S					
Sample No.	Sample Description and Classification	1	Unified Classification	Analytical Collected (Y/N)	PID		
90-58-618- 9-9/1-0-777 5-0/	9:55 gravel and soud, maist	0.3-1.1: Brown, poerly graded					
5 B.a(10 - 777 5.a)	10105 Uniform, wet 1.1-3.9; Brown-gray bro	nun med	40	7	0.4		
15 3/15 × × × 1.3	1015 SAND CON GRAVEL MITTU	ne i lacke	SM	7	0.4		
	Refusal @ 151 BGS						

Notes

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring: 58-518



Project: din wilminsten

Location: 58-519

Client: Ction

Boring: 58 - 519

File No.:

Contractor: TD\$	Drilling Method:	Definitions:
Operator: Jewes	Bore Hole ID/OD: 2.25"	S = Split Spoon Sample
Logged By: DLL	Auger ID/OD: 2.0 % 2-25 "	S = Spht Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insatu Vane Shear Test q, = Unconfined Compressive Strength wob = weight of 140 lb hammer wor = weight of rods we = Water Content, percent
	Sampler: DUL   NJB	q = Unconfined Compressive Strength (p
Date Start/Finish: 12 -14-12 / 11	Hammer Wt./ Fall:	wor = weight of rods
Boring Location: 50-514	Water Level <sup>3</sup> : <b>2</b> 6 <sup>1</sup>	we "Water Content, percent oc = Organic Content, percent

Boring Location: 50-514
Ref. Elevation1:

	Sample Information						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elementian (1)
0 - 5	78-48. 0.0/10	5.6(	9100	ned sand some fines, demp 1.3.1.9; grown organics, wet, uniform	SP SM OL		1.6
5-0	oc-98. 8.0/10	5.0/	9:20	1.9-1.9! Some as 1.3-1.9 obove, 1.9-4.3; Brown, poorly graded, med SAND, wet, looke	CL SP	ΙΥΙ	12.5
10 1 15	ec- 58-12/14-	5.0(I	2. 4: 40	c.o-o-B; Gray, poorly graded, mod-coarse SAND, wet, o-B-1-2; Gray cabbles, rack frags, loose, wet.	SM	Y	1.2
				Refusal @ 15' BGS			

Notes

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Boring: **58 - 519** 



DIM, WILMINGTON Project:

Location: 58-520

Client: 01.10 Boring: 58-520

File No.:

Contractor: TDS	Drilling Method:	Definitions:
Operator:	Bore Hole ID/OD: 2-25 "	S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By: >LC	Auger ID/OD: 2	R = Rock Core Sample V = Insitu Vane Shear Test
Checked By:	Sampler:	qp = Unconfined Compressive Strength
Date Start/Finish: 12-13-12/n	Hammer Wt./ Fall:	woh = weight of 140 lb hammer wor = weight of rods
Boring Location: 58-520	Water Level <sup>3</sup> :	wc = Water Content, percent oc = Organic Content, percent
Ref. Elevation¹:		

	Sample Information						
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	P.I.A.
0-1	96-58-520- 9-0/1-6-4ph	5.0/	8:10	0.0-0.2: Topsail 0.2.1.2: Brown - dork brown 5/LT and SAN, maigt 1.2-2/1: Coon - brown 5/11, Sand and rock frags, dog, losse	541		0.3
100				2.1-2.9. Grann, poorty graded med SAND, lacke, moist			
5,10	0c·5B·520- 8.0(10-#44	3.3	8:40	colobles and saved, lace	514	4	0.3
15		5.0( 3.4			×	N	0.4
20	18 (20 . 14 )	5.0	2: <b>5</b> 0	Coorse Sand, Some ground wer, lease.  Z.M. 4.6: Grown, poorin graded  fine SAND and SILT, wet, dans	51	Υ	G. q
20		5.0(		Refugal@ 23' BGG	51	N	O·9

Notes

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page

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Boring:

520

		1		Project: ottin, withwasten							
	amed			Location: SB - 521	Boring: 5	B-5	21				
	<b>GIIIC</b>			Clients	File No.:	_	2,				
				Citem.	11011011						
Con	tractor: 795		Drilling I	Method: direct push	Definitions:						
Ope	erator: Jerres		Bore Ho	le ID/OD: 2. 25 "	S = Split Spoon Sample U = Thin Wall Tube Samp	Spoon Sample					
Log	ged By:		Auger ID	1/OD: 2.0 + 2.25"	R = Rock Core Sample V = Insitu Vane Shear Te	ple					
Che	checked By: Mar 1/2/13 Sample				q <sub>p</sub> = Unconfined Compres woh = weight of 140 lb h	sive Strength	(psf)				
				Wt./ Fall:	wor = weight of rods						
Bor	ing Location: 59 .	521	Water Le	evel <sup>3</sup> : ≈ 13 ′ B65	wc = Water Content, perce oc = Organic Content, perce						
Ret.	Elevation':										
	Sample Informa	tion									
		1				Unified Classification		PID			
		2		Committee Description of the state of		cat	हु हु	E			
문		Recovery		Sample Description and Classification		Si ed	Analytical Collected (Y/N)	Elevation			
Depth	Samula Na	) S	Ti me			Unified Classifi	N of a	₹			
0	Sample No.	<u> </u>	-			15 0	405	W.			
0	OC-58-521.	5.0(	8.1.	o.o. 3.3: Brown, organic							
1	0.e((.e. *~		8:10	some rooms, unit	fe mm,	OL	7				
5	0.0((.4.77)	3.3		*****			'	0.4			
								,			
		,									
5				0.0 - 1.4 : Some as above				1			
1	ec-18-521-			1.4-3.5: Brewn - light	PYEN	SP	~				
	8.0(10-44	3.5	2.20	poorly grown med shop, un		1	7	6.4			
10											
			1.73	uet.							
10											
1		/		No recovery			_	/			
								/			
15			1			100					
			- 4-	0.9-1.4							
15	00-58.521 ·	·		Grow Brown well grade	4						
۱. ک	16/18 - 474	3.0/	8:44			1 1					
4e		1.4		sand and cravel, w	84	SM	4	0.8			
18						1 1					
9											
				Refusal @ 18. B	65	1					
			10000000								
						+ +					
		1				1 1					
	3-0 : V					1 1		1			
		_				1 1					
Note	es										
1011											
				41							
Ot	Section Base commerced account	havedor! 4									
strati	rication lines represent approximate l Inder conditions stated. Fluctuations	ooungaries betw of groundwater	een soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page 1	641					
					Boring:	521					



Project: olin, wilmington

Location: 58-522

Client:

Boring: 58.522 File No.:

Contractor: T>>	Drilling Method:	Definitions:
Operator: Jene 5	Bore Hole ID/OD: 2 · 2 5 ''	S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By: 🤋 🕻	Auger ID/OD: 2 - 0 " x 2 - 25"	R = Rock Core Sample V = Insitu Vane Shear Test
Checked By: MAM 11210	Sampler:	qp = Unconfined Compressive Strength (psf)
Date Start/Finish: 12-13-12 / 11	Hammer Wt./ Fall:	woh = weight of 140 lb hammer wor = weight of rods
Boring Location: 58 - 5 22	Water Level 3: 2 13 1 1365	wc = Water Content, percent oc = Organic Content, percent
Ref. Elevation¹:		

1	Sample Information							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Pt D Elovation
0-5	06-59-522 · 0.0/1.0-5-4	5.0(	9120	e-o.z: Tepsail/argenics  o.z-1.3: Brown, poering green fine sawb, io	-ded		Y	0.3
5-10	e. e/ 10 - xa4	3.3	9:40	1.2-1.4: brown poorly grad wet 1.2-1.4: Lover of dork brown gamics	700-		Y	1.5
10,15		5-0(		med coope sand, wed	)ed		N	1.2
15	9c · 58 · 522 ·	5.01	9150	red frags, locke,	1		4	0.3
				Refusal @ 17' 669				
Note								

Notes

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1041

	amed	0		Location: 58-523	Boring: 523 File No.:				
				el in	IIE 110				
Con	tractor: TDS		Drilling I	Wethod: direct push	Definitions:				
Ope	rator: James		Bore Ho	Hole ID/OD: 2 · 25 w  S = Split Spoon Sample U = Thin Wall Tube Sample					
Log	ged By: DCC		Auger IE	10D: 2.0x2.254	R = Rock Core Sample	R = Rock Core Sample			
Che	cked By: Man 1	2113	Sampler		V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compress	ive Strength	(psf)		
Date	Start/Finish: 12-12-	1211	Hammer	Wt./ Fall:	woh = weight of 140 lb has wor = weight of rods				
Bori	ng Location: 59 - 6	523	Water Le	evel3: = (51869	we = Water Content, percer oc = Organic Content, percer	gt ent			
Ref.	Elevation¹:								
	Sample Informa	tion							
ı						T =		4:0	
ı						읉	_	PID	
		€		Sample Description and Classification		2 2	e d	1 2	
ΙĘ		8	Φ.			iec ssif	e ct	<b>.</b> □ ∰	
Depth	Sample No.	Recovery	Time			Unified Classification	Analytical Collected (Y/N)	Slewation	
<u> </u>	00-58-523			0.0 - 0.2: Top 3011		120	405	<del>  ""</del>	
	0.0(1.0. AY-	5.=1	13:44		Frage)			1	
9		2.5	, 2, 7,	concrete/ cobbi	es		~	1.2	
5		2.2	_	0.6 - 1.4; Grav- brown n	~ed	SM	'	I	
			-	peculal graded	SAND			1	
$\vdash$		-	<del>                                     </del>	demp	- al -			<del></del>	
5	oc-58- 523	-	<b> </b>		set frag	•		1	
17				- mittue Some	Sand -	_	_		
1.`_	6.018.0.444	5.01	13:50	med said, some growers		5M			
10		3.5		Cobbles, doy			Y	0.3	
				0.5 - 3.1: Gray - ton rock	Frags/				
l				cabbles, lasse, dry	3.1	امدما		1	
					1 grada	GM	_		
				GRAUEL, SORGE COOLUSE	sara!	1	74		
				wet. Some	•				
<b>-</b>					7 1	-			
10		5.0(		0.0-2.3: Same as 3.1.	5 .2	1 1			
				above		64		11.7	
15		2.3					$\sim$		
						1 1			
15			ļ	0.0.3.5: Some at above	1	1 1			
ī		5.01				GW	′		
20		3.5				1 1	A/	-0-7	
							/	22.7	
					77.1.1				
20				o.a-1.9; Same as about					
١.	oc-58.523.	5.01	14:10		poerty	SP	\/		
2.4	22 24- **	3.0		graded coarse	CAND		Y	1.9	
				wet	7~~~		'	,	
Note	S								
	-			Refusal @ 24 ' B6	5				
Stratif	ication lines represent approximate	boundaries betw	een soil types.	transitions may be gradual. Water level readings have been made at times	Page				
and u	nder conditions stated. Fluctuations	of groundwater	may occur due	to other factors than those present at the time measurements were made.	Page ( $\bigcirc$	たし			
						22			
					Boring: 5	23			

	amed	0		Project: CIM, Wilmins Ma Location: 59 - 5 2 5 Client:	Boring: 5 B - 523				
Ope Logg Che Date Bori	tractor: TPG rator: Jones ged By: 0 (C cked By: MAN) e Start/Finish: 12-(2- ing Location: 524 Elevation!:	(2)11	Drilling M Bore Hol Auger ID Sampler: Hammer Water Le	e ID/OD: 2 · 2 × 2 · 25 · 25 · 25 · 25 · 25 · 25	Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insiru Vane Shear Test q, = Unconfined Compressive Strength (psf) wob = weight of 140 hammer wor = weight of rods wr = Water Content, percent oc = Organic Content, percent				
Depth	Sample Informat	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	P (5	
9-4	04-58-524- C-0(1.4- ***	5.0/	13:10	0-0.3: Brown topsoil   Sill 0.3-0.5: Brown great silt five sond 0.5.0.9; Brown poorly g	المحم مع	5H	۲	c	
5	<b>&amp;</b> 4			1.1 - 2.1: Brown med poor 5AND, demp 2.1 - 2.6: Brown, well gre	diener	SM	-	0	
5110	8.0(10 · 7 A	5.0(	13:20	SAND, Some grand g	mel,	J.		ō	
19		5.01 3.6		Send, demp,		ču	N	۱.	
20		5.0( 2·3		e-2.3: Same as above		60	N	l-	
20		5.el 4.6		0.0-1.2: 30me as above 1.2 - 3.1: Grow, party gr fine gravel, so sand, wet 3.1 - 4.6: Grow - brown po	~00d	GM Ro SM	<i>N</i>	0.	
Note	<u>es</u>			graded med s	AND				

	amed	0		Project: Location: 5B - 526 4 Client:	Boring: 58 · 524 4 File No.:				
Con	ntractor: TD5		Drilling N		Definitions:				
	erator: James			le ID/OD: 2 · 25 /	S = Split Spoon Sample				
_	ged By: DCC		Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample				
	ecked By:	12/17	Sampler:		V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressi		(net)		
Dat	e Start/Finish: 12-12~	12/11		r Wt./ Fall:	woh = weight of 140 lb han		(por-		
	ing Location: 524		Water	evel3: 5161665	wer = Weight of rod we = Water Content, percent	at			
Ref	Elevation: 524		AAGIG! PC	Wel: GIDGI	oc = Organic Content percen	east			
	The second secon			1					
	Sample Informat	don	!						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	FLS Elevation	
25	oc-58 524	4		o.e -1.7: Groul ton pac	2017	1	1		
_	27/29-444	4.4	13:30		sone	SP	1 - 1	1	
100		1.7		graded coorse SAND, med sand, lease, wer	3000	フィ	7	0.7	
29	1	-	+	med sand ,			1 1		
		<del></del>	+				1 7		
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, )		·			1			i	
J						1 1	11:11	i	
Note	as		911 23	The second secon					
180	2								
Strati	fication lines represent approximate t	ooundaries betv	ween soil types,	, transitions may be gradual. Water level readings have been made at times	Page 2				
and ur	nder conditions stated. Fluctuations	of groundwater	/ may occur due	e to other factors than those present at the time measurements were made.	Page 2	, a. t	. 2		
					1				
					Roring: <	2 - 1	57.4		



Project: Olin, witming ten

Location: 58.525

Client: olin Boring: 58-525

File No.:

Definitions:

Contractor: TDS	Drilling Method:	direct	DUAN
Operator: Temes	Bore Hole ID/OD:	2.25 ~	

2.25 ~ Bore Hole ID/OD: Demes

Logged By: Auger ID/OD: 2.0" \* 2.25" Checked By: ^~ 11213

Sampler: Date Start/Finish: 12-15-12 / 10 Hammer Wt./ Fall:

Boring Location: 525 Water Level<sup>3</sup>: 110' AGS

Definitions:

S = Spitt Spoon Sample

U = Thin Wall Tube Sample

R = Rock Core Sample

V = Institu Vane Shear Test

Q = Unconfined Compressive Strength (psf)

woh = weight of 1401b hammer

wor = weight of 160 to

we = Water Coutent, percent

oc = Organic Content, percent

	Elevation':		Ivvater Le	oc = Organic Content, per	ьеді		
	Sample Informat	tion					
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation 3
0				O.C. O.Z : Tepsoil		1	
7	cc- 58- 525-		11:00	med - fine shub, some argenics,		~	
5	0.0(1.0-7-	SM	~	2.0			
	oc-58-525-3.	( <b>5</b> . a	P411.24		_		
				2.4 - 28: Some ag 0.2-1.9			
				2.8.3.9: Black - brown SILT and			
	·			fine saubilayer of rock frage @ 2.q., locke, damp			
				E 2.4. / lacte/ Gamp			
				0.0.0.2; Brown . dark brown	_		
5		5.01		SILT, MOIST	SP	١.	
. \		4.1		ned - fine shup, damp, uniform		N	1.6
10		-			1		
1,0				0.0-41.2: 90me as 0.2.4.1	1		
,		5.01		above, but wet		_ 3	l
15		4.2			SP	N	2.4
ł					1		
15					-	_	
'9	oc . 58 . 525 .	5.01	11:45	graded samp and grave, met,	SM		
'	18/20- 444	2.9	-	locie		7	2.0
20				(00)			
				Resugal @ Zo' Bec			
-							
-						1	
}					1		
-	-						
Note	S						

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 105 1



Project: olin, wilmington

2111 BGS

Location: 58 · 532

Client: nio Boring: 53 - 532

File No.:

Contractor: TD5	Drilling Method:	direct	PUSON	Definitions:
Operator: James	Bore Hole ID/OD:	2.25"		S = Split Spoon San

20172.251 Logged By: Auger ID/OD:

Checked By: MAN 11213 Sampler: Die Date Start/Finish: | 2-15-12| 17 Hammer Wt./ Fall:

**Boring Location:** 58-532 Water Level<sup>3</sup>: Ref. Elevation1:

Definitions:

s = Split Spoon Sample
U= Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
q<sub>p</sub> = Unconfined Compressive Strength (psf)
woh = weight of 140 lb hammer
wor = weight of foods
w = Water Countent, percent
oc = Organic Content, percent

itel.	Lievation.						
	Sample Informat	ion					
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	Elevation 7
	06-58-532-			0.0.0.7 : Asphalt			
1	0.011.0.4.14		14:40			4	2-4
5		3.3		med peer 14 growed 5Am			١ ،
				some gravel, some rech frags 1.6.3.3. Brown tan poorly growed med same, some	54		
				groved med samb, some			
5				Fines			- ~
I۱	oc- 58 · 532	5.0/		0.0.3.5; Brown . gray pooriy			1.9
10	618-0-4	3.5	14:4	graded med shub, uniterm	SP	Y	17
				•			
10		2		0.0.0.41 Same as above			
١ ١	QC-18-532.	16.01		o.4.1.9: Brown, med dense,	271		1
13	11/13- **+	1.9	1415	o non-plastic SILT, wer		Y	1.4
_							
<u> </u>							
				Refugal @ 131 769			
ı							
$\vdash$					$\vdash$		
			-				
М					$\vdash$		
Note	S						_

<u>Notes</u>

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page

1041

Boring: 532 1

	amed	0		Project: Olin, Wilming ton Location: 58-533 Client: Olin	Boring: 56.533 File No.:				
Con	tractor: TDS		Drilling N	Method: direct poth	Definitions:				
	rator:		Bore Hol		S = Split Spoon Sample				
Log	ged By: D4L		Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample	е			
	cked By: MAM	7/13	Sampler:		V = Insitu Vane Shear Test q <sub>p</sub> = Unconfined Compressi		(nct)		
	Start/Finish: /2-13-1				woh = weight of 140 lb. has		(pst)		
		6	Hammer		wor = weight of rods we = Water Content, percen	ri .			
Bori	ng Location: 593 Elevation':		Water Le	vel3: 2 101 669	oc = Organic Content, perce	enat			
Rei.									
1	Sample Informa	tion							
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	5 Continued of	
				0.0-3.3: Brown , poorly	جر بحدواه				
0-5	· O · O / I · O	5.e/ 3.3	)4;œ	med SAND, son	e silv	5P	~	2.5	
5				0.0 - 4.2 : Some as abou	æ,				
7	oc-5B.					SP	7	2.0	
1	533-6180	-5.9/	14:20			1	,	2.0	
10	アルイ	4.2							
			7						
15	00-58-593- 13/15- xx+	5.01 3.5	1413	med shub, wet, unite	r	<b>SP</b>	Y	4-1	
				Refugal e 15' Be	S				
Stratif	ication lines represent approximate b	ooundaries betw of groundwater	een soil types, may occur due	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	Page ( )	ę l			
					Boring: 5	33			

	amed	0		Cheff. Chin	Boring: 58-534 File No.:			
	tractor: TDS		Drilling I		Definitions:			
	rator: James		Bore Hol	P 10/00.	Split Spoon Sample Thin Wall Tube Sample			
	ged By:		Auger ID	v-	Rock Core Sample Insitu Vane Shear Test			
	cked By: ^^~ )		Sampler		□ Unconfined Compressive h = weight of 140 lb ham	e Strength ner	(psf)	
	Start/Finish: 12-13-		Hammer		r = weight of rods = Water Content, percent			
	ng Location: 534 Elevation¹:		Water Le	vel3: 1909	Organic Content, percent	1		
Kei.						_		
	Sample Informat	ion						
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	S. L.
	06-58-534-			0.0 - 0.2 : Asphalt				
0	0.0(1.0-474	5.0/	150		b ond		V	
5		2.7		SILT, Lacre, Dry		SM	1	1.6
7				e.s. 1.5: Brown, saud and	GEME.		•	
ı				some fines		•		
				1.5-2.7 : Brown - 113h+ bro	~~~			
				poeru graded me	<b>20</b> -			
				fine SAND I dev	· lacte	50	_	
						1		
				a distribution become	-40.40			
5	96-58-534			poorly graded m	and .		V.	
5		(E)	15:10	SAND, done, loc		56	Υ	1.3
9	7.0/9.0- 4	23	17,10	SHAN ACHAIN, ICC	~6		- 1	
	17 (5-7)	2						
$\vdash$						-		
				Refusal @ 91 869		- 1		
				767	'	1		
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Note	S							
- 15								
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Stratif	ication lines represent approximate b	oundaries betw	een soil types,	ransitions may be gradual. Water level readings have been made at times	ge .			
anu (i	non continuous stated. Pluctuations	oi groundwater	may occur due	to other factors than those present at the time measurements were made.	10F	- 1		
				Bo	oring: 5	34		

_					derine.		
				Project: Olin, Wilmingran			
	amed			Location: winners, MA Boring: <	. 6		
1	dilieu			Client:	, (S)	. 2 3	>
1				Life Mo":	_		
	- PAREL						-
_	ractor:		Drilling I				
	4.011		Bore Hol	C - 1mm war 1806 Sambi	t		
	jed By: عدد		Auger ID				
	sked By: Start/Finish: 6-17-		Sampler:   \$\psi = \text{Unconfined Compressive } \\ \$\psi = \text{Unconfined Compressive } \\ \$\psi = \text{Weight of 140 lb. hamme} \\ \$\psi = \text{Weight of 1640 lb. hamme} \\ \$\psi = \text{Weight of 1640 lb. hamme} \\ \$\psi = \text{Vision of 1640 lb. hamme} \\ \$\psi = Vis				
				The William Content percent	4		
Born	ng Location: 59 - 5	>>0	Water Le	vel":	nat		
Kei.							
1	Sample Information	tion					
		1 1			5		
		-			Unified Classification	<b>7</b> 7	=
ا ۽ ا		Recovery		Sample Description and Classification	يّ ۾	Analytical Collected (Y/N)	Elevation
Depth		🐰	Time		Unified Classifi	[돌롱호]	948
	Sample No.	a l	F		2 2	₹85	ă
9				Note: See previous log			
)					51	1 1	
3.4							
1 1			4:40	\$ 0.3. descript	-on		
Ш				3.0-3.5: Brown-light brown			
				poorly med SAND. domp			
3.4	90 - 58 -			Shages			
	530 -		1414	3.5.4.0: Same as above.	524	1	
4. 4	3.514.4						
1 1	71 74 6			pre more acrub			
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Stratific and un	cation lines represent approximate b	oundaries betwee	n soil types,	transitions may be gradual. Water level readings have been made at times to other factors than those present at the time measurements were made.	6 1		
			.,	to other factors than those present at the time measurements were made.	. 1		- 1
				Boring: 5			- 1

	amed	0		Project: Olin, Wilmington  Location: Wilmington, MA  Boring: 58-53:  Client: Olin									
	tractor:		Drilling I		Definitions:								
	rator:		Bore Ho		S = Split Spoon Sample U = Thin Wall Tube Samp	ole							
_	ged By:		Auger ID		R = Rock Core Sample V = Insitu Vane Shear Te								
	cked By: NSD		Sampler		q <sub>p</sub> = Unconfined Compres woh = weight of 140 lb h	sive Strength	(psf)						
	Start/Finish: 6-13-1			Wt./ Fall:	wor = weight of rods we = Water Content, perce								
Bou	ng Location: \$6 - Elevation¹:	535	Water Le	vel*:	oc = Organic Content. per								
IXeI.			-		1. 861	forci	911apr/202	- 174					
1	Sample Informat	ion	1		<u> </u>								
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation					
	oc-53-535.			Same as 58.536 (no									
0	2.5(8.0-	/	14:00			534	4						
-	***			asphait			' '						
3.1													
2"	3												
211				50000 AS SB. 536									
3						SM	4						
11	oc-58.535 ·		14110				1						
4.0	3.514.0-20	,				1 1							
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Net													
<u>Note</u>	_												
	APP	104	2"	diameter metal pipe uncou	ered								
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				during hand-diaging o		- ( Q /	7						
				at approx 2.5 'B65, the	sto take	LIN		I					
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Stratifi	cation lines represent approximate he	oundaries between	en soil types	transitions may be gradual. Water level readings have been made at times	Dogo.								
and un	der conditions stated. Fluctuations o	of groundwater	may occur due	to other factors than those present at the time measurements were made.	Page	of 1							
					<b>.</b>								
					Boring: 🗲	35							

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				Location: 58-536 Client: Olin	Boring: 5			
	ractor:		Drilling M		Definitions:			
	rator:		Bore Hole		S = Split Spoon Sample U = Thin Wall Tube Sampl R = Rock Core Sample	e		
	cu by.		Auger ID/		V = Insitu Vane Shear Tes			
	ked By: ドラロ Start/Finish: 6ー1オー	2/11/11	Sampler: Hammer		q <sub>p</sub> = Unconfined Compress woh = weight of 140 lb. ha		(psf)	
	ng Location: 5%-5		Water Lev		wer = Weight of rods we = Water Content, percen			
Ref.	Elevation¹:		Tyvate: Le	YC: .	oc = Organic Content. perc	tut		
	Sample Informa	tion	7-					
Depth	Sample No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	
9	96-38.584 .	414	1.00	Mostly brown - light bro	~~		2001	
١,	X # 45	8-14-	12:00	SAND and SILT. DAY,	Same	SM	Y	
1	F - 7	-	+	organice, some asphal				
- 1		+	<del>  </del>	some grovel / cobbles	•			
3	ac . 58 . 53L .	_		1-1.7; Brown - dark 6		$\vdash$		⊢
7	2.5   3.0	MIA	12:2	•				
Ť				Stand ( supples , books ,	50 me	5 24	Y	l
3				1.7.2.2 : Readish promin	A CONGO			
				SAND, some silt, some	C 006101			ĺ
				2.2.3.0: Light brow		$\Box$		
L				poorly growed medin		1514		
L			lacksquare	laoser att		] [		
ŀ		<del></del>	igsquare	*				
-+		<del></del>				$\sqcup$		
3	00.69 ===	+	<del>                                     </del>	some as above, but	حاصيم	ا ـ ا		
1	oc · 58 · 536 ·	WIA	12:40			57	1 1	
4	3-5/4.0	1-12	12:40	•				
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				•	Project: Clin, Wilmington							
			1		Project: Clin, wilmington							
		amed			Location: 5B~ 537	Boring: S	B -	534				
		allec				File Man						
					Client:	File No.:						
					•							
	Con	tractor:		Drilling I	Method:	Definitions:						
	Ope	rator:		Bore Ho		S = Split Spoon Sample						
						U = Thin Wall Tube Sample R = Rock Core Sample	e					
				Auger ID		V = Insitu Vane Shear Tes	1					
		cked By:		Sampler		q <sub>p</sub> = Unconfined Compress web = weight of 1401b ha	ive Strength	(psf)				
		Start/Finish: 6~17-13	1 11		Wt./ Fall:	wor = weight of rods						
-		ng Location: SB-	537	Water Le	vel <sup>3</sup> :	we = Water Content, percer oc = Organic Content, percer	p ent					
	Ref.	Elevation':	3275									
	- 1	Sample Informat	lion			M A R MARK S A R A						
-		Sample mormal	1	T			_					
		1	İ				Unified Classification	l				
	l		l >	l			a l	= =	_ ا			
	۱.	1	9		Sample Description and Classification		la 을		<u>.</u>			
	ΙĘ	1	ļģ	و ا			E 2	Z & Z	i i			
	Depth	Sample No.	Recovery	Ting.			Unified	Analytical Collected (Y/N)	Elevation			
	-	Sample No.	<u> </u>				120	<b>₹</b> 0℃	Ш			
					Grey - ten poerly grow	o e e)	1		Ì			
	9,	oc-58-537-		15:3	SAMP, some fines		[_					
	١.	0.011.0- **			Same Stone	₹	5~	~	l			
	t	MSIMSD			some aronel							
		and DUP co	0.0				1		ì			
	_	SAS BOY ES	110C10C	2	<u> </u>		<u></u>					
			l		Brown - red brown pos							
l	1	Oc-58-537-		15:50			_	~				
_	1	2.5 13.0. x-		Ta (SC	300000	gomb	SM	7	l			
<b>6</b>	2.5	2.2 3.6. 144			same gravel, cobbles				l			
2	7	•										
3.	P .	ļ										
	3.4			1115	Some as doone							
		DE-58-537-		16:00	and and and			-				
- 1	•	3.514.0-44					5M	7				
	4.0											
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	Stratif	ication lines represent approximate b	oundaries betwe	en soil types,	transitions may be gradual. Water level readings have been made at times	Page (C	1	-				
	and di	nue: conculons suited. Piùctdations (	oi groundwater i	Hey occur aus	to other factors than those present at the tims measurements were made.	Page (of	F					
								-				
L						Boring: 5	3 - 5	57				

am		9		Project: oin, wilmington  Location: wilmington, MA  Client: Oin	Boring: SF File No.:	3-6	00		
Contractor: < D\$/			Drilling M		Definitions:				
perator: 3. G			Bore Hole	IDIOD. 6.	S = Split Spoon Sample U = Thin Wall Tube Sample				
egged By: Auger necked By: Auger Sample				OD: Caraland	R = Rock Core Sample V = Insitu Vane Shear Test				
			Sampler:		q <sub>p</sub> = Unconfined Compressiv woh = weight of 140 lb. ham		(psf)		
Date Start/Finish:			Hammer 1	1 6 74	wor = weight of rods we = Water Content, percent				
Boring Location:	78.500		Water Le	vel3: 😂 🗢 🤊 '	oc = Organic Content, percer	nt			
				1				-	
Sampl	le Informatio	n							
Sample	No.	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	FID	
0			1.75	0-5: Brown fine SAN	D1 50 mp				
1 Pve- 1	اصو	/	13:00	Silti same cabbles 4-5,1005e, 2+4 C	frem	tin	2	40.1	
5		-						40-1	
5				0-0.6; Brown Fine SAND	, some	SP.	x 0		
	1	5.01	13:50	0-6-1.1: 704 med . coorge 5	QUA		N X	60-1	
1		3.9		and crimer, som		514	1	20.1	
				1.1-2.1: Park brown fine 5	•	a L	14:30	4	
***************************************	,	<del></del>		moss troop, damp			Mic	€0.	
10				2.1-3.9: Brown, pacely gro	ക്ക <b>േ</b>	SP	9 6	1.3	
		5.al	14 INC	0.3.9; Brown, med SAND poorly graded, t Sitions to ten @	tra-n -	SP		401	
15									
				a. Ed Same as 0.3.9 abo		SP			
20		5.ed 4.1	કબરબક	2.0.3.0; Brown, red by	rown	5 M		1.4	
				End of boring; 20'	865				
Notes						C+	+ Fell		
			4664	DITCH 34.6'			P		
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	31	17.91	ee	40	-1 C W 1	N Pest	
			PPI	SIDEMIAL WAY					
Stratification lines represe and under conditions state	nt approximate bo ed. Fluctuations of	undaries betw f groundwater	men soil types, may occur du	to other factors dian those presentat the talle measurements were made.	-3-	>F \			
				Į.	Boring: チョ	_	600		

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	amed	0		Location: Second Cultures Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues Continues	Boring: ≤ € File No.:	3-6	,01			
Contr	ractor: CDS / Boo	P1	Drilling	John Sha share I Go an's	Definitions:					
	ator: Seeglia	S=S								
	ed By: Dec		Auger ID		U = Thin Wall Tube Sample R = Rock Core Sample					
	ked By: 4-5-13	- A A- A-	Sampler		V = Insitu Vane Shear Test q <sub>o</sub> = Unconfined Compressi	ve Strength	(psf)			
	Start/Finish: 3 - 6 - 1			Wt./ Fall:	woh = weight of 140 lb. han wor = weight of rods					
	g Location: Preside		Water Le		wc = Water Content, percent oc = Organic Content, percent					
	Elevation <sup>1</sup> :	Meri	Water Le	Nei . 2 0	oc - Organic Content, perce	III.				
		Alan					2 (1)			
-	Sample Informa	Tion	1			Te		_		
Depth	Counts No	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Pto Elevation		
5	Sample No.	<u> </u>	-	0.0.9; Asphalt and 19	Mars A	120	405	- 4		
7		<del> </del>	<del> </del>	rock fronce le	777 h	_				
, }	Pre - vac	<del>                                     </del>	-	a a life: Game in Come chi		FILL	~	10		
5		+-	11:20	GILT, MADIST, CFIL	6)					
7				1.6 . 6.0 . Guard tock from	/ Cabbles					
_		1		1001e, 6" mon 1	U GICTURE	2 C	-icc)	L		
5				CH lavers of as		1	60	19.		
		5.01	12:05	0.0 - 1.0 : Brown SAND and			0 5 3	'		
	<b>₽</b>	4.1		some grovel/cobb	leg, maist	CSN	ンびる。	5.2		
				1.0.1.3 : Same as above, but	more			0.5		
				cobbles I reck from	5 · Q+4	514	0,19			
$\neg$	****			1.3.2.4: Dark brown orga			*			
- 1				Same wood / picm			-	0.5		
- 1		<del> </del>	+	Same maps the	rragy,	bL	1			
ŀ	···	+	<del>                                     </del>	2.4.2.8: Brown med FAND,	dom	_		0.2		
0		<del></del>	<del>                                     </del>			SP				
-		-	+	2.8-4.1: Gray rock frags an	2440	5M				
1			<del> </del>	wet.				5.3		
7		5.91	12:15		SAND	SM		-		
		1.9		and BRAUEL , some co	2 21dd c	۲.,	41	0.6		
_				wet						
5										
				2 0. 3.8: Gray, SAND		1				
1		5 A/		and gabbles, some rack f	1280	SM		2.3		
П		3.8	12:25	CORBLES Wet		1				
4 [						1	17	ŀ		
0		T								
ı				End of booing = 20	' BG5					
			1							
ŀ		T		1						
				1		1				
ote	s					_		-		
010	-	100 OL		llected @ 6-8' interv	ما					
					•	•	\			
1-1	SIDENTIAL WA	<u> كا</u>					`,			
		, <del>-</del>	3	BREAKDEUL	,		7			
		47		LANE			•			
		3.	Yes	4-						
		•	5, 🗨	58-69						
			GRA 4	4						
Stratif	ication lines represent approximate	e boundaries bet	ween soil type:	s, transitions may be gradual. Water level readings have been made at times	Page 1 of	1				
nd u	nder conditions stated. Fluctuation	s of groundwate	r may occur di	e to other factors than those present at the time measurements were made.		$\Psi_i$				
					Barin	<b>a</b> .	10:			
					Boring: 5	D .	601			

	amec®			Project: Olin, Wilmington Location: Wilmington, MA Boring: Client: Olin File No.:			;B- 60Z				
Contractor: Cos Drilling Method: Source Operator: Cos Bore Hole ID/OD: C'' Logged By: Dec Auger ID/OD: C'' Checked By: Sampler: Dec Date Start/Finish: 5-6-13 [3-1-4] Hammer Wt./ Fall: / Boring Location: SG-6-2 Water Level 3: 2 8' Ref. Elevation 1: /						Definitions:  S = Split Spoon Sample U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test q,= Unconfined Compressive Strength (psl) woh = weight of 140 lb. hammer wor = weight of rods we = Water Content, percent oe = Organic Content, percent					
Depth	Sample Informati	Recovery	Time	Sample Description and Classification		Unified Classification	Analytical Collected (Y/N)	Elevation.			
0	Pre. Vae	/	13:50	poorly growed shub and some colobles, damp, less	GRAVEL,	File	2	1.9			
5 	/	5.0/	69 5-4 2-4 13:55	o-o.q; same as above o.q.21; park brown of a sitt, same peat, wood! P frogree 1145, wet	lent	ol SP	7.0 [9.0-4 P 14 (10	0.6			
0	/			SAND, Uniform, wer	Spunds Spunds			400			
5		5.01	14:18	0 - 1.5: Same at 2.1-3.6 ab 1.5-2.8; Gray to tan poor graded med SAND, some re frags, wet	1-4	SP SP	4	1.2			
20		5.0	14120	0.4.06; Same as above ted 0.6.2.4; Same as above but great	604			8 - 9			
				End of borung	: 20'						
Strati and u	fication lines represent approximate	boundaries bet s of groundwatei	ween soil types r may occur du	, transitions may be gradual. Water level readings have been made at times e to other factors than those present at the time measurements were made.	Page		ę /				



Project: Onn, wilmington Location: wilmington, MA

Client:

Boring: 58.603

File No.:

					4
Contractor: Boost Leveres	Drilling Method:	Sonic			Definitions:
Operator: 3. Gragica	<b>Bore Hole ID/OD:</b>	6" casing	445"	Carrella	S = Split Spoon Sample U = Thin Wall Tube Sample
Logged By:	Auger ID/OD:	1.	***		R = Rock Core Sample V = Insitu Vane Shear Test
Checked By:	Sampler:	DLC			q <sub>p</sub> = Unconfined Compressive Strength (ps woh = weight of 140 lb. hammer
Date Start/Finish: 5-6-13/5-7-13	Hammer Wt./ Fall	: /			wor = weight of rods
Boring Location: 58.645	Water Level <sup>3</sup> :	2 9			we = Water Content, percent oe = Organic Content, percent
Ref. Elevation¹:					

	Sample Information			e Information .					
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	P10 Elevation		
0-	Prevae		11:16	o-5: Brown, poorly graded med sand cabbles, looke Cabbles, looke	FILL				
5		5.0( 3.q	11:50	0-1.9: Brown - gray pe arty graded med shad and attack, same cables, lasse, damp lig - 2.5: Brown - red brown med shad and attack, some plant matter with	SM	7.0190	2.1		
10				2.3.3.9: Same as above , bu +		4 3 4 - A 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			
15		5.01	11:53	0-3.8: Brown poorly graded med sand, uniform, wet	•	2	113		
20		5.07	12:00	graded, med-coarse SAND, wet.  2.6-4.0: Same as above,  but grayer, same cabbles		2	1-5		
				End of Goning: 201869					

Notes

MS and MSD collected from 7.91 internal

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1061

58-603 Boring:

	amed			Project: ain, withingten Location: wilmington, MA	Boring: 5 ( File No.:	3 - 6	,e4	·
Contra	actor: Booms	CDS	Drilling N	flethod: Son LC	Definitions:			
	tor: J. Gragit		Bore Hol		S = Split Spoon Sample U = Thin Wall Tube Sample			
	ed By:			IOD EII CACING 4.76 II COPP	R = Rock Core Sample			
	ed By:		Sampler:		V = Insitu Vane Shear Test q <sub>e</sub> = Unconfined Compressi	ve Strength	(psf)	
		-6/3-9			woh = weight of 140 lb. han wor = weight of rods			
		2013	Hammer		we = Water Content, percent			
	g Location: 644		Water Le	vel3: £ 10	oc = Organic Content, percen	nt		
Ref. E	levation¹:							_
	Sample Informa	ation						-
Depth	Sample No.	Recovery	Time	Sample Description and Classification	,	Unified Classification	Analytical Collected (Y/N)	CLO P
-	Sample No.	1 2				120	405	- "
-		<b>-</b>	<del> </del>	0.5: Brown, med-fir	<b>Te</b>	l . I		
	Pre. vac		9:40		M W Calapte	بعند	.7	4
_				wet	· ·			
ŀ		<del></del>	-	Q - Q. H; Same as above		L.,		
L		5.01	9:50	darker. Large	60000	FILL	2	27
L		0.4		at 0.3 - 0.4.				<i>'</i> ا
Г					*			1
- [			1					
		1		a-1.9; Brown, med pass	Ly grades		000	
H		-	<del> </del>	med SAND. LOSE, damp	. 4 9	T I	900	
.		501	-			SP	023	
.		4.5	9:55	5.1- H.C. BROWN DOOR A BLO		-	0	6.
L				med. coays gams, some g			15.0	
				wen. caars aven a	A GOELL COST	1	16	
				0. 3.1 : Same as above,			× 1	
۲		5.01	10:00				7 1	1
H		4.1	1.5.5	3.1-41: Same as above to	104	SP		١.
-		+	-	Ø +4.				١.,
L		<u> </u>	<b></b>					
-								
				Con at Assume.				
٦				End of borins:	20 869	<b>∤</b>		
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-		1						
H		+	<del> </del>	•		.		
$\rightarrow$		-				$\vdash$		_
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L								
1		+	<del>                                     </del>					
Nota:	9	-				_	-	
Note:	2			cted at location (				

No distinct organic layer observed. Collected Sample at 9-11' in dark brown - brown

Sand larer

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 05 (

Boring: 58- 604



Project: OIIN, WILMINGTON
Location: WILMINGTON, MA

Client:

Boring: SB.605

File No.:

Contractor: Boost Longyon	Drilling Method: Some	Definitions:
perator: 3. Graguia	Bore Hole ID/OD: 6"	S = Split Spoon Sample U = Thin Wall Tube Sample
ogged By: ❤️C	Auger ID/OD: 6" cast mg 4.45" barrel	R = Rock Core Sample V = Insitu Vane Shear Test
	Sampler: Duc	q <sub>p</sub> = Unconfined Compressive Strength (psf) woh = weight of 140 lb, hammer
Date Start/Finish: 3-6-13 (5-6-12	Hammer Wt./ Fall:	wor = weight of rods
Boring Location: 56-605	Water Level <sup>3</sup> : 4 8 '	we = Water Content, percent oe = Organic Content, percent
Ref. Elevation¹:		

	Sample Information			ormation				
Depth	Sample No.	Recovery	Time	Sample Description and Classification	Unified Classification	Analytical Collected (Y/N)	FID Flevation	
0	Pre-voc	/	8:30	Brown, poorly graded, med-coarse sawb and gravel, same large rack frage cakeles	FILE		225	
5								
1		\$.q 4.8	<b>9:40</b>	0.0.4: Gray, white rock flower, bavider, dry, lacke 0.4.2.6: Dark brown fine organic 51ct, saturated 2.6.3.9: Same at above, but some	Dι	0e-58-	12.2	
1				Fire SAND  3.9.4.8: Brown - Gray poorly  graded med - cody SAND and  GRAVE, MET	SM	****	40	
10					-			
15		5-01 4.6	8:50	o.o.q; some as 3.q-4.8 about o.q.4.6; Brown I pearly grouped med SAND and GEAUEL, some fires wet	SM	2	7.9	
				0 - 4,1; Some as above (0.9.				
20		5.0(	9:05		6 2^	1	2-1	

Notes

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Page 1 o F I

Boring: 58-605